

JUL 21 1910.

VOL. VII. NO. 6

\$1.00 A YEAR

JULY, 1910

# SELLING ELECTRICITY

The Magazine of Electrical Progress



“One  
Live  
Sign”

This is what the man who paid the bill said about this Valentine display. The lamps are so flashed that the entire sign has the appearance of traveling continuously in the direction indicated by the arrows. This same Valentine idea can be applied to any size of sign, horizontal or vertical. The great advantage of the idea is that it can be applied without adding much to the cost of the sign itself, while the effect enhances the advertising value of the sign a thousand fold.

This is only another example of VALENTINE ADVERTISING BRAINS applied to electric sign making. Every VALENTINE sign is unique, original and has ADVERTISING value. You need that kind of signs on your circuits.

Let us figure on a “live one” for that hard-to-land prospect. We’ll get the order for you. Write.

**Valentine Electric Sign Company**

20 North California Avenue

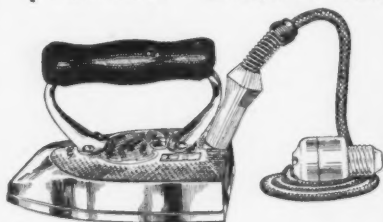
Atlantic City, N. J.



## On Hot Tuesday Mornings

—in fact, on all Tuesday mornings tell your customers what they are missing in comfort, coolness, convenience and economy unless they have an

### "American" Electric Iron



For your current consuming customers you buy efficient motors and lamps. Do you buy efficient electric irons? You should.

By efficiency we mean giving an electric iron *enough wattage to make enough heat* and then so constructing the iron that this heat is *concentrated on the ironing surface* without loss by radiation from the top and sides.

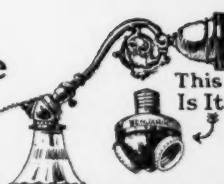
Thus an electric iron of either higher or lower wattage than "American" irons may consume more current and time to do a given piece of work. How? Write us.

**American Electrical Heater Co.**

DETROIT, U. S. A.

Oldest and Largest Exclusive Makers in the World

At Home  
At the Office  
In Any Place

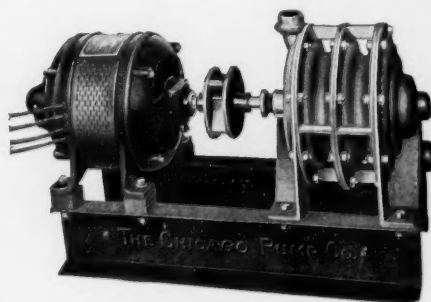
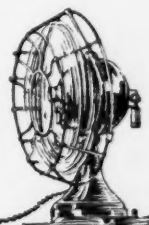


## of Business BENJAMIN PLUG CLUSTER

is a great convenience because it gives you two outlets where you have had but one, doubling the capacity of your sockets by doing the work of two. You may attach any other electrical appliance that you wish and burn your lamp at the same time. It requires no extra wiring—you simply screw it into the socket.

For sale by all Electrical  
Dealers or sent postpaid  
on receipt of price, 75c.

**BENJAMIN ELECTRIC  
MFG. COMPANY**  
507 W. Jackson Blvd., Chicago



## Electric Driven Multi-Stage Turbine Pump

To Sell Electricity  
Sell Electric House Pumps  
Cellar Drainers  
Pneumatic Water Systems and  
Vacuum Cleaners

Write for Catalogue giving full information and prices.

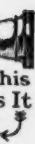
**The Chicago Pump Co.**

1055 Fulton Street

CHICAGO, ILL.

, 1910

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LL.





Look for the

# Holophane Stiletto

*A new and distinctive feature of the new Standard Line*  
**HOLOPHANE REFLECTORS**



Extensive Type Standard Reflector



Intensive Type Standard Reflector



Focusing Type Standard Reflector

Holophane STANDARD LINE Reflectors for Mazda and Tungsten Lamps are new—different—better.

They are a great improvement over the older "high efficiency" lines, embodying new principles of design and construction.

They are more attractive in appearance and of better efficiency than any popular line we have yet offered.

Their distinguishing feature is the new Holophane Stiletto prism (see cuts) which is large at the top and gradually tapers to a point at the Reflector's edge.

Holophane Standard Line Reflectors were ready July 1st. Bulletins now ready—get yours.

## Holophane Company

SALES DEPARTMENT

NEWARK, OHIO

New York

Boston

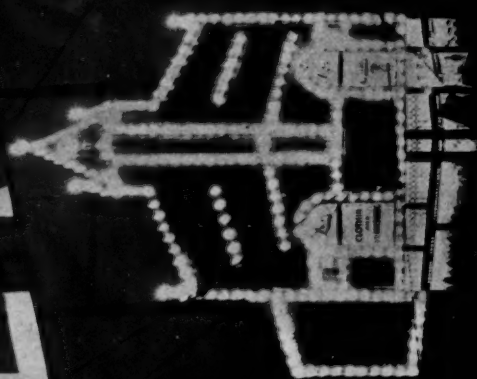
Philadelphia

Chicago

San Francisco

In writing to advertisers, mention "Selling Electricity."

# LEVY'S



HEADQUARTERS

H.S. &amp; M. CLOTHES

SOROSIS SHOES

ELBEE CLOTHES

F. S. &amp; U. SHOES

DUTCHESS TROUSERS

FURNISHINGS &amp; HATS

THE BRIGHT SPOT THIRD &amp; MARKET

Levy Bros. Sign, Louisville, Ky.: 55 ft. long, 50 ft. high. Largest Electric Sign in the South

**BUILT BY THE A. & W. ELECTRIC SIGN CO., ARTISTIC SIGN BUILDERS**  
**WRITE FOR DESIGNS AND BULLETINS**

# SELLING ELECTRICITY

VOLUME VII

NUMBER 6

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## To Every Central Station Man!

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**A**BOUT all that most people know about the electric vehicle is, that way-back-yonder they were much talked of but failed to make good. The fact that they are seen more and more nowadays doesn't seem to make a strong enough impression to overcome the old "black eye," and before you can expect them to sell you have simply got to tell the public the things they ought to know about electrics.

With the idea of putting into your hands the right sort of educational matter, we are going to issue with the August issue of **Selling Electricity**, a 16-page Supplement containing popular, interesting articles of the kind that will increase this class of business—articles on "how to intelligently let a battery alone"; on the fallacy of demanding excessive mileage; on the private gasoline-electric garage, etc. These Supplements, not being the ad of any one vehicle manufacturer or of your own company, will prove the best possible educational advertising if distributed to likely auto owners in your city. The price is nominal—5c. each for 100; 3 1-2c. each for additional copies up to 500; 2 1-2c. each for all above 500.

If you will recall the special issues of **Selling Electricity** devoted to church signs, bank signs, etc., and remember the benefits that were reaped by those central stations which distributed these issues, you will see the practical value of the education advertising which **Selling Electricity** offers you.

We want your opinion of this proposition, and we want your order for as many **Selling Electricity** Supplements as you think you can use to advantage. We're convinced that this proposition will help the electric vehicle situation in your city and throughout the country. It's good, broad-gauge creative work that we are doing and we deserve your co-operation—especially since it means profit to your company. How many?

---

## Selling Electricity

74 Cortlandt Street

New York City

In writing to advertisers, mention "Selling Electricity."

# SELLING ELECTRICITY

Edited by FRANK B. RAE, Jr.

EARL E. WHITEHORNE, Managing Editor

## Booming Billings Street Lights in the Sunday Supplement

*Interesting Details of a Recent Series of Articles Appearing in a Billings, Montana, Daily*

Out of Billings, Montana, comes a new idea for spreading the gospel of light, and advancing the interests of both a newspaper and a central station in one short spectacular campaign. It is a lesson in co-operation that is worth the careful study of every central station sales manager in the country—because in every city in the land the same methods can produce equal benefit. The scheme in itself was simple enough, but it bears just

weeks, and combined artistically grouped photographs of local after-dark scenes with strong, convincing copy, pointing out the merits of the local system of street lighting and testifying to the advantages of public illumination, and the various forms of electric advertising, as an influence for civic improvement and the growth of the city. The arguments were backed by facts and figures, both local and general, the notable features of the



Night Scene in Billings, Montana

this mark of genius—it worked. And it points the way and sets a pattern.

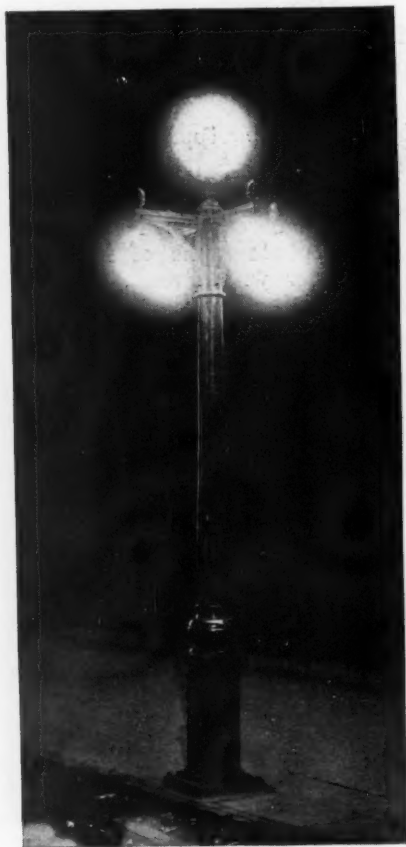
Some time ago, *The Billings Daily Gazette* published a series of lavishly illustrated full-page articles depicting in black and white the night appearance of Billings streets. These articles occupied the entire front page of the Sunday supplement for four successive

various installations in the city were explained and the situation of Billings as relating to electric service was compared with near-by cities. But the secret of the interest which the articles aroused and the strong impression they made lay in the artistic manner in which the displays themselves were executed. Owing to the necessary reduction in size, it has



been impossible to make the reproduction as effective as the original, but the accompanying group is interesting as showing the care which was taken to produce a display which would arouse the interest and hold the attention.

Mr. F. J. Ankins, Manager of The Gazette Printing Company, publishers of *The Daily Gazette* conceived the idea and carried it out



The Type of Lamp-post Used in Billings

with the assistance and co-operation of Mr. J. F. Roche, Manager of the Billings & Eastern Montana Power Company, though the name of the central station was not featured in any way. In speaking of the results obtained, from the standpoint of the newspaper, Mr. Ankins says:

"It struck me that to run a series of pictures of the streets of the town

after dark, together with a description of the lighting features, would attract attention and advertise the city far and wide. The results have more than exceeded expectations, for we sold out every edition early in the day, the demand for the papers increasing with each succeeding article. Each number we forecasted in the paper and hence obtained increased orders from news-dealers. The pictures started everybody talking, and many people sent copies away to friends in the east to show them what kind of a town we have out here, and how the streets look after nightfall.

"My only regret is that I did not wait until the first of the coming month, for we have so many more lights and signs up that we could have crowded in twice the number of pictures; but when the idea occurred to me, I rushed it into print at once. The increase in the number of ornamental street lighting posts has been appreciable, and new signs appear on all sides, and real'y, the pictures we produced do not do the booming done of Billings justice at the present time. A small army is employed by the electric company, stringing new wires, erecting new posts and hanging more electric signs, for the lights of Billings are not hid under a bushel—it would take an umbrella several miles square to do that."

Since such a series of articles must be of unquestioned public interest and "pay the way" to the newspaper, Mr. Ankins' comment is important.

Mr. Roche, of the Billings & Eastern Montana Power Company, claims that the photographs, as shown in the paper, do not really do the city justice, but he heartily endorses the scheme as profitable publicity.

"About eighteen months ago," he says, "we started a campaign for better lighting, both exterior and interior, in the city of Billings, and offered signs (all of which contained 4-cp. lamps) at a rate of 25 cents per lamp per month, burning from dusk until midnight. These signs were wired with a switch on the outside of the building

and we furnished a man to turn them on and to turn them off. We also hang all signs and wire them free of charge to the consumer. In this space of time we have installed over fifty electric signs of the Western Display Co. and the Federal types, and

every sign a selling point for the company. The total number of signs installed figure something like over 5,000 lamps on the streets alone, in electric signs.

"We also have several store windows operating on flat rate from dusk



Three of the Full-page Displays. This Gives a Good Idea of the Effect Produced

all are illuminated letters. Besides which a number of outline signs have been installed. Every Saturday morning we have a man, or as many men as are necessary, go over these signs and remove the burned-out lamps and put in new lamps free of charge. This method always keeps our signs very bright and attractive and makes

until midnight, the majority of these windows being lighted with tungsten lamps on which we make a charge of 50 cents flat rate a month on a 40-w. tungsten. About a year ago we commenced advocating the ornamental post lighting system for street lighting and have already installed about fifty posts. We expect to install fifty



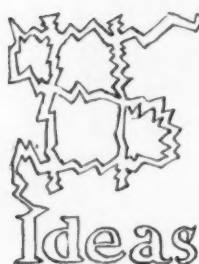
more within the next few months. These posts contain five lights, the top light being a 60-w. tungsten placed in a 16-inch globe, and the four arm lights, each 40-w. tungstens, in 12-inch globes. They are placed ninety-five feet apart, which makes eight to the block, each merchant paying his pro rata of the cost of installation according to his frontage on the street. The cost of installation of each post, including lamps and globes, figures about \$80.00, and we get \$60.00 per year per post for current consumed burning from dusk until dawn.

"The electric signs, window lighting and post lighting are the only flat rates we have, the balance of the lighting and the cooking appliances all being on the meter basis. We have about one thousand electric irons installed, also coffee percolators, chaf-

ing dishes, washing machines, and in fact, all kinds of electrical appliances are working in Billings at present."

The success of this series of articles in *The Billings Daily Gazette* is just another illustration of the necessity for sustaining the public interest and attention in matters which presumably are self-evident, but because they do not effect the other fellow's personal fortunes, escape his serious notice. Every newspaper man realizes this full well, for it is his constant study; therefore, he is best able to assist the central station in that all important function of the sales manager.

The opportunity for such publicity awaits every central station, but because to the newspaper man the lighting company's problem is but one of many, the initiative must in most cases come from without.



## A FAN SUGGESTION

GEORGE W. BARLOW

General Electric Co., Chicago, Ill.



People whom necessity compels to travel during hot sultry summer weather seldom begrudge paying an extra dollar for an "outside" room at a hotel, nor will those same people hesitate to pay 25 cents a night for the use of a three-speed 8-inch fan to keep their rooms cool as mountain air. Therefore, it behooves any live hotel manager to lay in a supply of these dainty but very effective devices and secure these "quarters."

It is not a hard matter to demonstrate the margin of profit on such an investment, and much preliminary work has already been done by the hotel trade papers, for the electric fan as an added convenience has been under discussion among hotel men for some time.



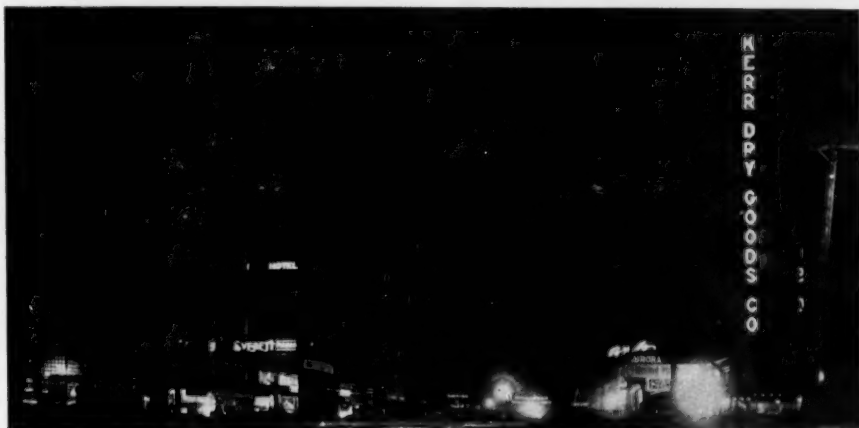
## Building Public Confidence in Oklahoma

*The Story of a Year's Commercial Activity in Oklahoma City and the Results it has Produced*

By F. H. Tidnam, General Manager Oklahoma Gas & Electric Co.,  
Oklahoma City, Okla.

The Oklahoma Gas & Electric Company of Oklahoma City, which is operated by H. M. Byllesby & Company has, we feel, met with remarkable success by following enlightened public policy methods in conducting its affairs. Operating in a city which has had a remarkable growth in population and wealth, it is only natural that the business of the company should have shown remarkable increase since the present management took hold of the property in 1904. Analysis of

In attempting to explain the success of the Oklahoma Gas & Electric Company, I would place first and foremost, the active faith of the management in the city itself. This faith has manifested itself in the expenditure of large amounts of money for the physical improvement and extension of the property. More than \$600,000 was invested on capital account in 1909, and the expenditures of this nature every year since 1904 have been large. Plans for the present year contemplate



Night View of Main Street, Oklahoma City

conditions, however, shows that our business has been developed in a much higher ratio than the advance of the size and resources of the city. In 1909 Oklahoma City gained from 12,000 to 15,000 people, but the number of electric consumers increased 50 per cent and the number of gas consumers increased about 35 per cent. Conservative estimates place the present population at about 60,000, and March 1st, 1910, we had 6,301 electric consumers and 7,296 gas consumers.

the investment of several hundred thousand dollars additional, and we expect these demands for new capital to increase rather than to diminish.

Second in the list of causes which produced the results indicated, I would place the thorough belief of the management in the application of the best new business getting methods. We are thorough believers in "Commercialism" in the conduct of public utilities. We think that a central station company should go after business just as hard as though it had half

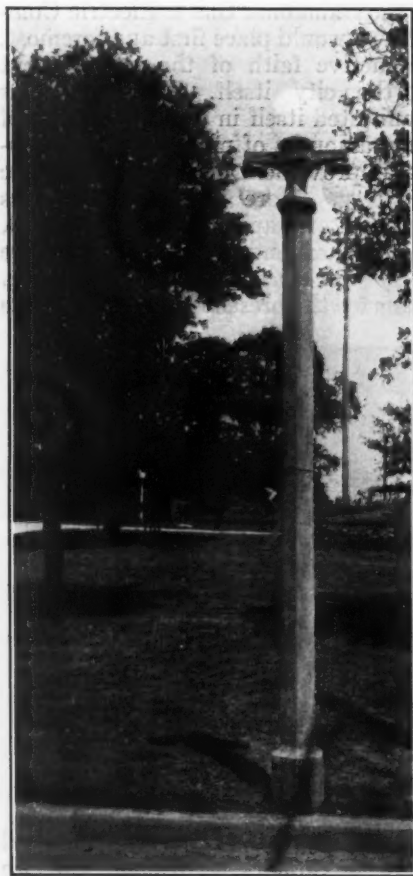
a dozen active competitors in the sale of electric energy. Mr. E. L. Callahan, the New Business Manager of the Byllesby properties, has been working with the local management for the past year, and his experience and ability have been of great assistance, for we have accomplished a great deal toward increasing the spirit

ment has brought results. As the months went by these results became better and better, showing accumulative effect, and many contracts have been landed, the possibilities of which had not been suspected before.

I believe that central station management should co-operate to the fullest extent with the other commercial interests of its city toward originating and carrying to successful consummation various plans and efforts to add to the industrial resources of the community. We have entered into the activities of our local Chamber of Commerce and other bodies, on the theory that we are just as much interested in the upbuilding of Oklahoma City as any other business institution in it. We believe that we have greatly stimulated local business by pushing the use of electric signs, burning from five to six hours every night on a flat rate charge for service. Special inducements have been offered through the local contractors to wire up old houses, the plan used being well thought out and producing excellent results. Assistance rendered to automobile dealers in stimulating the use of electric automobiles has borne fruit with the result that the number has been increased to nearly 100.

Something of an innovation was tried in the way of trial installations, both for lighting and power. In some instances we have gone ahead and put tungsten lamps and fixtures in stores absolutely on trial, and in every case we have succeeded in inducing the consumer to abandon his previous method of lighting and stick to our installation. Similar methods were tried for power installations, with gratifying results. Considerable progress has been made in curb lighting for "White Ways," but we have thought it well to experiment with various style posts before pushing this class of business too hard.

A special feature has been made of inducing people to ask our new business department experts for advice whenever they are in doubt or in



An Oklahoma Concrete Lamp-post

of determination and enthusiasm in our organization, which is absolutely essential in the upbuilding of central station business.

At Oklahoma City we have a distinct New Business Department, conducted by men to whom the term "expert" is properly applicable, and who are salesmen as well, and almost from the first the efforts of the depart-

**Protect Yourself From Typhoid**

The most productive source of typhoid is food which has been contaminated by flies.

Flies cannot light on food protected by a strong breeze.

An ELECTRIC FAN will protect your food.

You should have an ELECTRIC FAN to keep your dining room cool and comfortable.

You should have an ELECTRIC FAN to keep your food pure.

An ELECTRIC FAN for your table for three meals will use only one and one-half cent's worth of current a day.

Is it not worth a cent and a half to insure yourself against disease and be comfortable besides?

**Oklahoma Gas & Electric Co.**  
**110 North Broadway**  
**Phone P. B. X. 14**

A Sample of Oklahoma Advertising

trouble concerning their lighting or power installations, for we believe that it is really part of the functions of this department to assist consumers in getting satisfactory results from our service. This effort is not only well repaid

most "up-to-now" effects in lighting, and progressiveness of this kind is always appreciated.

As illustrating the tendency of the Oklahoma Gas & Electric Company to adopt new methods which seem to insure merit, might be mentioned the use of concrete poles on some of the principal thoroughfares where we are compelled to run overhead pole lines. The pole used is an Oklahoma City product, made by the Hollow Concrete Pole Company, and has had the effect of transforming the usually unsightly pole lines into objects pleasing to the eye. Maintenance costs on the concrete pole lines are much lower than for the wooden pole lines and the innovation has produced a great deal of favorable comment.

Our company has always been a liberal patron of newspaper advertising. Last year, when we sought and obtained a new franchise in the city, we placed a great deal of reliance on an extended advertising campaign in our

## The Part of Gas and Electric Service In Making Comfortable Homes

Oklahoma City is a community of wonderful and comfortable homes. No where are dwellings more attractive. The shape of gas and electric service in making these attractive and beautiful homes is a factor in the most of the city.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

There is a direct correlation between the gas and electric service and the comfort of the home. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Not only have our service requirements been met but we have also met the requirements of the city. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

THE SERVICE rendered to patrons is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

STUDY OF THE NEEDS AND DEMANDS OF THE PUBLIC AND COLLECTIVE INDUSTRY TO SHOW US JUST WHAT THE PEOPLE WANT.

From the standpoint of the city, the service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric Company in the form of a franchise. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

Electric lighting is not only a comfort but it is also a necessity. The service in the city is such that the average home is comfortable and clean.

Gas and electricity not only make homes clean but they also make them comfortable. The service in the city is such that the average home is comfortable and clean.

## The Oklahoma Gas and Electric Company

By F. H. TIDNAM, General Manager  
 Advertising for Confidence. A Double Page Spread

by the satisfaction rendered to patrons, but it unquestionably produces a great deal of additional business in a thoroughly legitimate way. We want our consumers to receive the benefit of the

four local papers. This advertising was started months in advance of our application for a franchise, and when the question was finally submitted to the voters we had a great majority of



the people with us. In all our advertising we endeavor to inspire confidence in the company and its methods, and very seldom is this point overlooked in any publication emanating from our office. We make an effort to treat the public with the greatest consideration and respect, and repeatedly affirm in our advertisements that we regard ourselves as a public servant with well defined duties to the public, which we must fulfill as the price of our existence.

Early in the present year we moved our offices into the ground floor of the new Insurance Building, which is a



One of the Concrete Pole Lines

large office structure. We have fitted up our new offices and reorganized the office force so as to give the public prompt as well as efficient attention. The Oklahoma Gas & Electric Company is a firm believer in the principle that the rates for utility service must be kept at the minimum consistent with conservative operation and a reasonable profit. We believe that it is a duty and obligation to obtain all the business in our city which it is possible to get, and work constantly to further this idea.

#### **Illuminating Eleven Acres**

The construction department of the Commonwealth Edison Co., of Chicago, has just performed a feat that has attracted a large amount of interest in illumination circles; namely, the satisfactory lighting of an eleven-acre arena in Grant Park, Chicago. A tournament and maneuver by the United States Army was held there from July 4th to 14th, and it was necessary to provide illumination for a space 600 feet by 800 feet, which included both the tiers of seats and the "ring." Eighty flaming arcs were hung at 50-foot intervals and totaled an estimated 240,000 candle-power. Over the arena the lamps were suspended 35 feet from the ground.

#### **New England N. E. L. A. to Meet**

The Executive Committee of the New England Section of the National Electric Light Association, at a meeting in Boston, Wednesday, June 22, decided on the arrangements for the second fall convention of the section. The section has had two very successful conventions, and it is expected that this one will be even more interesting and helpful.

The convention will be held at The Griswold, Pleasant Point, New London, Conn., Tuesday and Wednesday, September 13 and 14. A special train will leave Boston at 3 p. m. Monday, September 12, arriving in New London at 5.30. The guests will then be taken by boat to the hotel. The program will be as follows:

Monday evening—Reception by officers and members of Executive Committee and ladies.

Tuesday Session, 10 a. m. to 1 p. m. Papers:—"The Advantages of a Uniform System of Rate Making." "Building up Electric Sign Business."

Tuesday afternoon—General Entertainment.

Tuesday evening—Banquet.

Wednesday Session, 10 a. m. to 12:30 p. m. Papers:—"Special and Decorative Street Lighting." "The

Best General Policy of Publicity." 2:30 p. m.—Executive Session.

These papers will be distinctive in their treatment of the subjects in hand. The one on rate making is a sequence to the paper on "Price of Electricity" by R. S. Hale of the Edison Electric Illuminating Company of Boston, read at the annual convention last March. This new paper will not be technical in its treatment of the subject, but will illustrate how important is the adoption of a uniform system. The New England Section is pioneering this field for co-operation and the helpful interest of all the Central Station members in that section has been aroused.

#### "Joshing the Colonel"

Here is a clever street-car card designed and executed by two members of the staff of the Edison Electric Illuminating Co., of Brooklyn, at the time of the home-coming of Ex-Presi-

and other points not covered by business getting or defective service.

The suggestion for this card was given to the Suggestion Committee and was awarded a prize of \$10.00 for the suggestion. The idea was carried out by another employee, who has some drawing ability. He was given a prize of \$25.00 for the execution of the card.

The Edison Company is now having cards made which will be used throughout the street cars in Brooklyn, the name and address of the company being printed below the design.

#### A Working Laundry at St. Louis Show

At the St. Louis Electric Show, which was held in the Coliseum directly after the Convention of the National Electric Light Association, the exhibit of the Union Electric Light & Power Company occupied the stage, an elevated area 4,000 square feet.

At the rear of the stage a cottage



A Brooklyn Edison Car Card

dent Roosevelt. It certainly is as clever and original an example of opportune advertising as is seen in the year's work.

The Brooklyn Edison Company has a system of suggestions whereby a committee appointed by the company receives from any employee of the company suggestions regarding improvement of the company's service in any way. The Suggestion Committee receives monthly from twenty-five to thirty suggestions regarding office routine, handling of business

was built in which were three rooms—living room in the centre, the bedroom to the left and the dining-room to the right. On each side of the stage were displays in the open, closed in by a railing. To the left and directly in front of the cottage was an electric garage. In front to the left, was an industrial exhibit. To the right, next to the cottage, was a kitchen and in front, to the right, was the laundry. These exhibits were all placed around an open court, in the centre of which was a flower bed eight feet in diameter,

containing rose bushes, the blooms illuminated with decorative lamps.

The various exhibits were completely equipped with all types of electrical apparatus in operation and a very clever innovation was introduced in the laundry, where all the table linen from a large near-by restaurant was washed and ironed throughout the week of the show. Attendants from a laundry were also on hand busily engaged in ironing shirt-waists and other articles of wearing apparel.

#### Ordinance Allows Electric Signs 10 Feet. All Others 3 Feet

The authorities of Fort Wayne, Ind., have recently adopted a new sign ordinance which permits the installation of electric signs extending up to ten feet over the sidewalk. For all other signs the limit is three feet. This was designed to encourage the growth of electric sign lighting as a source of additional illumination for the streets, and it has resulted in a boom in the electric sign business.



### Advertising to Competitors

T. I. JONES

General Sales Agent, Edison Electric Illuminating Co., Brooklyn, N. Y.



Here is a post-card we have been sending out to all the jewelers in the city. On the face of the card we have written on the typewriter:

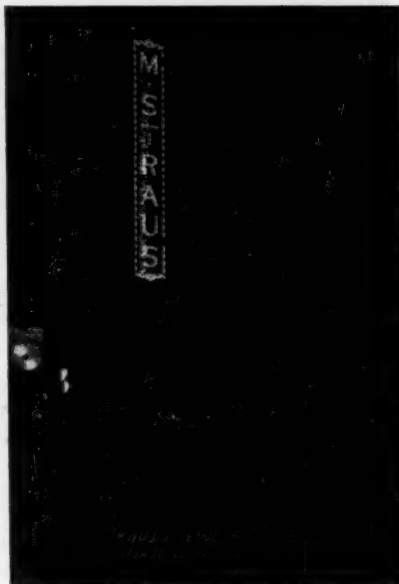
You're a jeweler too!  
Does this interest you?  
We are sending out  
hundreds of these cards.

It advertises Straus—  
and electric signs on Brooklyn  
Edison current.

We'll do the same for you.  
Say when and we will have  
an agent call.

This is a scheme we are working with a number of recent installations where there are a good many prospects in the same line of business.

We find that the man whose sign is featured is always very much pleased and his competitors are bound to give attention.





## Lighting With 500-Watt Mazdas

*A Description of the First American Installation of the Largest High Efficiency Incandescent Lamp*

By Roscoe Scott

To attract the eye and satisfy the discriminating taste of the feminine "shopper," good-sized fortunes have been invested in high grade retail stores and equipment. Incidentally the problem of illuminating these establishments in such a way that they will have a cheerful, inviting appearance, and display the merchandise to the best advantage, has called for no little experimentation. The new ten-story steel building of the Halle Bros. Company, Cleveland, fur-

iridescent glassware. The ceiling here is of a yellowish cream tint, while the woodwork throughout is of oak and the general effect produced by the illumination is that of a subdued light of a warm, restful quality, contrasting with the daylight of the illumination on the other floors. The average foot-candle intensity at the level of the tea tables, as measured by an illuminometer, is about 3.21, the readings at different stations varying from 2.65 to 4.00. Another feature



Installation of 500-Watt Mazda Lamps, Cleveland, Ohio

nishes an interesting example of these statements. It is situated near the junction of Huron Street and the fashionable Euclid Avenue, fronting on each, and the entire building, from skylight to sub-basement, constitutes a huge store where every part of milady's wardrobe can be purchased. The store is lighted throughout by Mazda lamps, mainly of the 150-watt size.

A luncheon and tea room, which is located on the seventh floor and contains nearly a hundred tea tables, is illuminated by 25-watt lamps in

that may be mentioned in passing is the so-called "French room," or "light room," to be found on several of the floors. It is a white-walled compartment from which practically all daylight may be excluded, and here evening gowns are examined with reference to their appearance under artificial light. The French rooms are lighted by concealed Mazda lamps.

But the progressiveness—one might almost say the daring—of those who planned the lighting of this establishment is exemplified on the main floor. Here may be seen the

first American installation of 500-watt (1.15 w. p. c.) tungsten filament lamps. The mammoth incandescents, thirty in number, were manufactured by the Buckeye Electric Company, of Cleveland, and before considering the illumination which they give, a word as to the construction of the lamps may be of interest.

Each lamp contains two distinct 250-watt circuits connected in multiple. The purpose of this arrangement was to prevent units from going out "without notice," so to speak, and

the mahogany show-cases are illuminated internally by means of tubular lamps in show-case reflectors.

Measurements of the general illumination from these ceiling lamps were taken in the plane of the tops of the cases (3 ft. 4 in. above the floor), a Sharp-Millar illuminometer being used, and the results of the test are given in the following table.

The tendency towards more powerful units in recent incandescent installations in large halls and stores is undoubtedly a sane one. The intro-

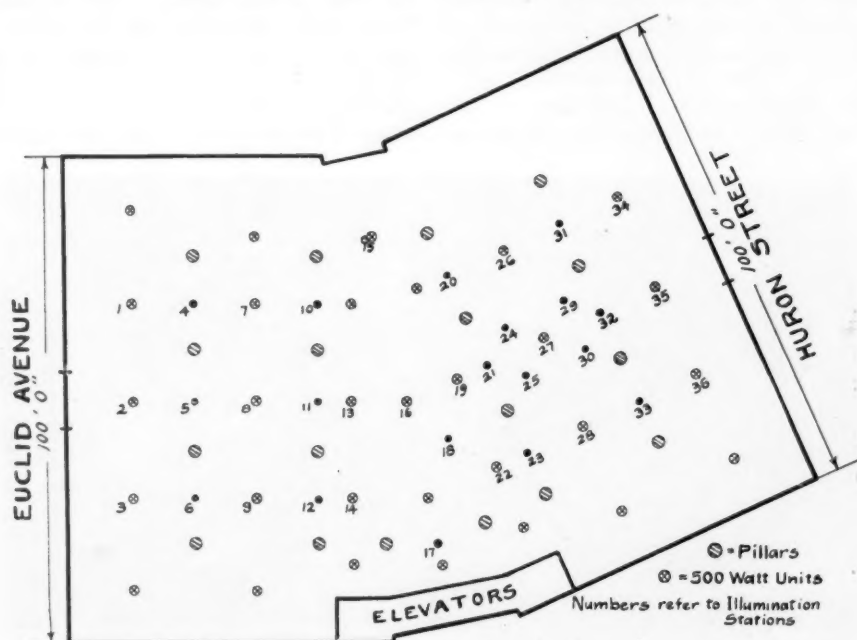


Fig. 2. Ground Plan of the Halle Bros. Co. Installation of 500-Watt Mazda Lamps

marring the completeness of the illumination. One sometimes thinks of the ordinary tungsten filament as a tenuous thread, but the filaments of these 500-watt lamps are nearly 0.006 inches in diameter—larger than No. 36 B. & S. wire.

These lamps are equipped with diffusing globes and suspended from the 22-foot ceiling by chains three feet long, each unit being on a separate tap circuit and controlled by a separate switch. The ceiling, pillars and walls on this floor are finished in white and

duction of high candle-powers should not, however, be undertaken without a full knowledge of the necessity and means for avoiding the extreme contrasts and physiological irritation caused by poorly distributed illumination and by insufficient diffusion. The lamps should be "obscured," as the British say, or else removed entirely from the range of vision. High candle-power Mazda lamps make it possible to obtain more light for a given cost, and light of better quality, since the thick metallic filaments can eco-

Table of Illuminometer Readings

Station No. See Fig. 2	Foot-Candles	Station No. See Fig. 2	Foot-Candles	Station No. See Fig. 2	Foot-Candles
1	3.9	13	6.3	25	4.3
2	3.7	14	5.85	26	4.45
3	3.7	15	6.9	27	4.7
4	4.8	16	6.9	28	4.8
5	4.0	17	6.3	29	4.2
6	4.1	18	5.9	30	4.0
7	5.05	19	6.6	31	4.1
8	5.0	20	5.5	32	4.0
9	3.8	21	5.8	33	4.5
10	6.0	22	6.0	34	3.7
11	6.0	23	5.7	35	3.55
12	5.15	24	4.7	36	3.95

Average of all readings, 4.9 foot-candles

nominally be operated at very high temperatures. The engineers who accomplished this pioneer installation have rendered a distinct service to the profession.

the Glen Summit Springs Hotel, Glen Summit, Pa., which is located about 30 minutes' travel south of Wilkes-barre.

#### News From Susquehanna Properties

Announcement is made of the following changes which have taken place in the personnel of the various properties operated by the Susquehanna Railway & Light Company of New York City.

Mr. E. L. Pearsall, who for some time has been manager of the Commercial Department of the Altoona Gas Company, has been made manager of the Commercial Department of the Union Gas & Electric Company, Bloomington, Ill.

Mr. C. M. Kaltwasser, who has been acting manager of the Commercial Department of the Union Gas & Electric Company, has been transferred as Commercial Manager of the Colorado Springs Electric Company.



View of the 500-Watt Mazda Installation, Showing Treatment of Globes

#### Pennsylvania State Convention

Notices have just been sent out announcing the date of the next convention of the Pennsylvania Electric Association. The meeting will be held on September 14, 15 and 16, at

Mr. J. A. Hazlett, who has been temporarily Acting Manager of the Commercial Department of the Colorado Springs Electric Company, has been appointed Manager of the Commercial Department of the Altoona Gas Company.

### The Electric Real Estate Agent

A real estate agent in Brooklyn was recently commissioned to rent a large department store building on a prominent corner in the business section of the city. The building was a large one with a floor area of 60,000 square feet, so that the dealer could afford to spend money to effect the sale.

This photograph shows how he went about it, probably the first time any real estate man has ever placed so great a confidence in the selling power of electric light; he believed, however, that the sign and the brightly lighted store interior would secure more attention than any other medium of advertising. The sign has only been up a few weeks, but it has brought him a large number of inquiries and he believes will consummate the deal before long.

land Illuminating Co., Cleveland, Ohio.

3. Outline of an Equitable Power Rate. B. H. Gardner, Dayton Lighting Co., Dayton, Ohio.
4. Methods to be Pursued in Getting New Business in Cities of 15,000 and Less. L. A. Pettit, Jr., Middletown Lighting Co., Middletown, Ohio.
5. Tungsten Lamps vs. Central Station Earnings. M. L. Booth, Bellaire Light & Power Co., Bellaire, Ohio.

### Stokes Goes to Long Island City

Mr. Harry R. Stokes of Savannah, Ga., for some time assistant power engineer with the Edison Electric Illuminating Co. of Brooklyn, has been appointed power engineer to organize



Real Estate Agents' Sign in Brooklyn

### Ohio Convention Program

The sixteenth annual convention of the Ohio Electric Light Association will be held at Cedar Point, Ohio, on July 26, 27 and 28. The program as announced will be as follows:

1. Experience with Series Tungsten Lamps for Street Lighting. Claude C. Smith, Bradford, Ohio; C. C. Custer, Piqua, Ohio; Frank Jackley, Eaton, Ohio.
2. What Progress is Being Made in the Introduction of Electric Vehicles in Ohio. J. T. Kermode, Cleve-

and manage a power department of the New York & Queens Electric Light & Power Co., Long Island City.

### Providence Rates Reduced

The Narragansett Electric Lighting Company of Providence, R. I., reduced the rates in force on retail lighting from fourteen to twelve cents per kilowatt hour. Their regular schedule of discounts continued, so that the net reduction to the consumer amounted to a possible 14 1-2 per cent.



## The Need of Preparation

By W. E. Bayard

Ever since Noah built the Ark in anticipation of the flood, men have realized the imperative necessity of preparation—that is, most men have. As a rule, central station men haven't.

When you want to hit a nail on the head, it's a good plan first to get your eye on the nail; similarly, if you are going forth to sell a man electric service the first job is to locate your man. That seems obvious enough, but not one central station in a hundred does it. On the contrary, the prevailing fashion seems to be to start out hopefully and tackle anyone who happens to be handy. If the luck is with you, this method is excellent, but the average return on the investment of time and effort is not entirely satisfactory, especially when the method is applied by a fifteen or twenty-dollar solicitor.

Now, when we talk about preparation, we mean real, old-fashioned, thoughtful consideration of the job in hand, the means for doing that job and the probable results that will accrue. If you are going into a residence lighting campaign, for instance—and residence lighting campaigns are proving mighty popular and profitable right now—it is necessary to do more than make up a list of residences from the telephone book or a four-year-old city directory. In the first place, you want to know something about the people on your prospect list—their station in life, mode of living, and their age; you want to know whether or not the house is wired; whether the house can be connected quickly or requires the attention of a service gang; whether it's a rented house or occupied by the owner and how old the house is; whether the district has suffered any depression as from fires caused by electric wires or from explosions of gas or asphyxiations. Such information is imperative, just as imperative for you to know whether you are about to lay

a power house foundation in quicksand or on solid rock.

Then you must know what kind of a proposition to offer. A houses-wired-for-three-dollars proposition is obviously unsuited to a swell residence section or to a flat dweller, just as a fine line of expensive portables does not appeal to the Yiddish population. You've got to see the nail you're trying to hit if you expect to hit it very hard or very straight.

Again, you must consider your means for getting the business. A residence lighting campaign almost always requires evening work, because only in the evening can one find the man of the house. Problem: is your organization prepared for this extra service? Such a campaign also calls for the co-operation of the contractors. Problem No. 2: can you get that co-operation or is your cheap wiring proposition one that completely alienates them and wins their opposition instead of their support?

Embarking upon a sales campaign is exactly like building a power house. You don't begin a power house by lighting a fire under a boiler set in the middle of a ten-acre lot. You first check up the franchise situation; you figure just where is the cheapest and best place to build; you buy the land; you draw elaborate plans and specifications based upon exact costs of material; you know to a hair just the actual efficiency of the plant before you even break ground; and finally, when the job starts, you turn it over to a subordinate and do no more work other than keeping a watchful eye on the progress of the job.

That is exactly how you should prepare a sales campaign—by doing all the brain work in advance. You should know where and how and *why* you are going to build; what materials you are going to use; what efficiency the campaign will have. And unless you do such preparatory work your

campaign will be about as much of a makeshift as a power house built by guess.

However, there is a lot more to the proposition than merely sitting down and dreaming up a possible plan. You may not guess about a sales campaign; you must *know*. Just as an ordinary salesman may not successfully plan a power house, so an ordinary engineer should not trust too much to his ignorance in planning a sales campaign. Absolute foreknowledge is, of course, impossible in any matter which depends upon psychology, as do sales, but there are a good many matters that can be determined exactly by a man of commercial experience.

For example, take the advertising ordinarily used by lighting companies. It is of two classes—glittering generalities and incomprehensible technicalities. Let me quote from a recent advertising magazine article on this subject:

"In a pretty little booklet, there is illustrated type DSS -1- 1.30 H. P. Form HC Motor for Sewing Machines. On page one we are told since 1845, when Howe first produced a satisfactory model, vast numbers of sewing machines have been made and marketed for all conceivable purposes, and that of these, probably the greater number sold, are of those types designed for household use. And that with the advantages of convenient, uniform and rapid sewing, rendered possible by the machine, there came also the unpleasant and sometimes dangerous fatigue engendered by the long continued pumping action of the feet upon the sewing machine treadle, and that many auxiliary devices have been designed to avoid this laborious application of foot-power. Among these the modern electric motor of small size, comparatively easy of application and reasonable cost, is undoubtedly the most favored in all dwellings, where electric power is available, and so on through 12 pages.

"The intended purpose of this booklet is to tell the story of its adapt-

ability—ease of application. On page 5 is shown type DSS 1.30 H. P. Form KC Motor on Sewing Machines, in which Madam no doubt is very much interested, and which she, of course, thoroughly understands. On pages 6 and 7 an illustration shows 'the competent parts of a high arm sewing machine motor,' while another shows an end view of a DSD 1.30 H. P. Form HC Motor installed on a Sewing Machine, which may fix in her mind the impression that a DSD 1.30 H. P. Form HC Motor with a high arm is better than a XYZ low arm type.

Further descriptive matter with symbols and fractions of H. P. and other shop data are given, and again, on page nine—9 different HS and H Numbers are tabulated—9 form KC and K Types added, all being of type DSS some of them 1.30 H. P. and some 1.40 H. P., giving the speed and the cycles and the volts, with other illuminating data, but no prices, all of which most assuredly is quite clear to Madam, who may now intelligently place her order."

How far do you really think that gets toward an order? As a matter of fact, it does more to scare the average woman than a shock from a defective socket, and the impression we really want to create—that of simplicity, ease of handling, safety and convenience—is entirely lost in a maze of trade jargon.

The preparation of advertising for a sales campaign is a matter of just as much study and thought as the selection of a boiler. It requires just as carefully built foundation, just as carefully planned connections and just as much care after it is once set up in running order."

The proposition under which you work is of even greater importance. The common idea that to make a sale you must cut the price or offer something cheap is the biggest commercial mistake in the world. People don't want low price—they want big value. There's a difference. For example, if you offer a woman an electric flatiron for \$2.00 and stop

there, she will probably think the iron high priced because ordinary flatirons cost only a few cents. If you offer her a \$6.00 iron for \$2.00, she'll probably ask, "What's the matter with it?" and accuse you of selling an article that is wasteful of current. But if you advertise that through the failure of a jobber you are able to offer a \$6.00 iron for \$4.98, she'll know she's getting a bargain. It's a problem in which psychology and hard sense are mingled. It isn't the price that attracts; it is the *reason* for the price. In one case you offer a cheap article; in the second case, you cut the price; in the third instance, you give the public a bargain. This principle holds good throughout the entire field of selling. What people want is value—not cheapness.

The terms under which you make your proposition may also be a big factor. The installment plan may be ethically wrong, but it's practically successful—which is the test, after all. There are millions of salaried people in the land to whom the installment proposition appeals, simply because they always live up to the limit of their incomes. Installment propositions do not appeal to moneyed folk, because the man with money in the bank doesn't need them. But to the salaried man who must set aside so much for rent, so much for food, so much for clothes and has a bit left over, this monthly payment is a veritable boon. It enables him to buy luxuries he could not dream of on a cash basis—and remember always that electric service is a luxury to the man whose house isn't wired.

The installment plan has another advantage—it enables the central station to co-operate with local contractors on a basis that means mutual profit and a handsome increase in business. The contractor generally cannot afford to carry partial payment accounts, but the central station can, and should, when by so doing it can expand in profitable lines. Take fixtures as one sample; if added to the contractor's soliciting, can you not see

the field for expansion? It is simply a matter of taking advantage of circumstances and "making hay not only while the sun shines, but where the hay is thickest."

However, the details of the plan are, after all, details. The point of the argument is—get a plan. And let that plan be carefully laid by men who know the commercial end of the business and whose reputations and salaries depend upon their commercial success. There are plenty of central station men competent to plan a sales campaign wisely, but advice is cheap and there are merchants in your town who will advise you or other central station men whose experience will add to the soundness and practicability of your personal efforts. Do not be afraid to seek help in the preparation of a sales campaign any more than you would spurn the advice of a consulting engineer if you were planning a power house. The expert and the man of successful experience are, after all, the only guides we have.

Plan well, when you have planned, seek counsel. When you have absorbed the best that your counselor can give forth, revise your plan. But always remember that any selling campaign requires the same careful preparation, the same deep forethought, the same analysis of conditions and circumstances, the same tests of methods and materials, as does the construction of a power plant.

#### Electric Piano Drying

Down in the Panama Canal Zone the housekeeper suffers great inconvenience by the excessive moisture in the atmosphere, for it creates rust and mould and has a bad effect on furniture and draperies. As a protection, it has become the custom there to keep an incandescent lamp burning inside all pianos to prevent the rusting of the wires and the sticking of the "action."

In a good many cases several lights are kept constantly burning throughout the house as an extra protection.



## SELLING ELECTRICITY

JULY, 1910

### FAIR PLAY BY THE LAMP MEN

When Mr. S. E. Doane read his paper on high efficiency lamps before the National Electric Light Association at St. Louis, the majority of those present looked upon it as simply another of a long list of papers on the rate question. A few—there are only a few competent to pass judgment upon such a paper—recognized it as a notable contribution to the literature of rate analysis; the many read it hopelessly, as something beyond their ken and affecting them only as an academic discussion might affect the cost of living; hardly an individual present realized that this paper represents a most earnest and liberal effort upon the part of the lamp interests to “play fair.”

Consider: when the tungsten lamp made its appearance, it promised to cut down by two-thirds the central station's income from lighting. Instantly a large proportion of the central station men said, “We will not permit this lamp on our circuits; it means ruin.” And the lamp men, despite the temptations for immense profits, despite the fact that they held in their hands the means and the power to introduce this lamp broadcast, accepted the dictum of the lighting industry and adopted such means as have hampered the free use of tung-

stens, thus conserving the interests of the central stations. These are facts. There are, of course, many inner details. Those with the faculty of putting two and two together to make five, will prove to their own satisfaction that the lamp manufacturers acted selfishly or out of necessity. Perhaps; but there is plenty of evidence to prove that they played fair voluntarily and little that they did so from force of circumstances.

But though they have proceeded slowly, accepting a comparatively small volume of business where they might have forced large sales, the attitude of the lamp men has not been one of calm and contented renunciation. It is one thing to concur in the industry's demand for protection against so revolutionary a thing as the tungsten lamp, and quite another virtually to throw that lamp on the scrap-heap. Because the lighting men were successful in their first protest, too many of them have proceeded upon the assumption that indefinite protection was guaranteed. It is not. The lamp manufacturers must sell the higher efficiency lamps. They are entitled to and are impatient for their profits on these lamps. The public is entitled to and is too rapidly becoming impatient for the benefits of these lamps. And history proves pretty conclusively that progress is inevitable and that the sorry machinations of the selfish never availed for any considerable time. The world isn't built that way.

Even yet, however, the lamp manufacturers are not willing to resort to force in promoting sales. Sales they must have ultimately, but for the present, at least, they are holding to the policy of conservation, and since cen-

tral station conditions in general are not such that the newer lamps can be used generally without danger to the lighting industry, they have set about the Herculean task of altering these conditions. Hence Mr. Doane's paper.

Lighting men must realize that the problem of the high efficiency lamp is not one of efficiency at all, but of rates. Increased efficiency in the transformation of electric energy into light is as inevitable as increased efficiency in the transformation of coal into electric energy. Under present conditions, the central station benefits solely from the latter higher efficiencies, while the current consumer benefits solely from the former. But, unfortunately, the two lines of progress do not advance equally. The central station engineer, by immense expenditure, may cut down his generating costs a small fraction of a cent per kilowatt-hour; in the meantime the customer, at an expenditure of a few cents, cuts his demand in two. The old rate scheme, being based upon a lamp efficiency of four watts per candle, becomes a grim joke when we reach an efficiency close to one watt per candle. Consider what it would be if the efficiency were reduced even more—to a half, a quarter, or even a tenth of a watt per candle, which is not at all beyond the realm of possibility.

These things Mr. Doane has realized, and realizing, he has entered upon a campaign to educate the lighting industry to a system of rates that will adapt itself to progress.

It is not an academic discussion entered into as a test of wits; it is a practical effort to enlighten us upon fundamental facts, to prepare us for the inevitable half-watt lamp.

Mr. Doane's paper may seem abstruse and difficult of comprehension, but not the lowliest lighting man can afford to lay it aside until he has its fundamental principles firmly in his mental grasp, nor may he rest until he has applied these principles to his own conditions and studied their application to his own peculiar needs. We are all more or less inclined to leave the solution of the rate problem to Doherty, Van Ness, Gardiner, Lupke and a few others of analytical minds and the means of investigation. We are too busy with the insistent problems of the day to look for those that we think lie in the future. But the rate problem and the high efficiency lamp problem are not of the future; they are of the present—they affect this month's earnings, this year's dividends.

So the study of the rate problem becomes a matter of pressing necessity. The lamp men are holding their sales forces in leash. They are working earnestly to save the industry from revolutionary rate change. But they cannot hold back very long; the march of progress will not turn aside or halt for them or for you. Today there are experimental lamps now burning in the laboratories of the German inventors, and perhaps in the laboratories of American lamp makers,—lamps whose efficiencies are to the present Mazda or tungsten what these lamps are to the carbon. You may say that your present rates will take care of the present lamps, but how about these new lamps?

#### CO-OPERATION MINUS THE BRASS BAND

Within the year there have been a good many earnest endeavors upon

the part of lighting men to align themselves with their local contractors to the end that there should be more co-operation between the central station and the men who can do the most for or against the station's profitable expansion. Generally, these efforts have taken the form of dinners at which all concerned indulged in a deal of speechmaking and where the soothing influence of good food and expensive cigars helped the cause of harmony.

Such an affair is, without doubt, a step in the right direction, but it should be understood by the lighting man who inaugurates it that it is only a step. An annual love-feast is all very well from the contractor's standpoint, but it is the weekly meal-ticket to which his real loyalty is extended. Co-operation with a brass band will arouse his enthusiasm, but ten dollars added to his bank balance has a more practical and lasting effect.

Real co-operation between the central station and its local contracting interests should be based not upon banquets but upon business. There should be mutual business reasons for its establishment and continuation. There should be some plan of mutual profit—something definite and specific to work for and to work upon. Co-operation which is based upon an agreement not to injure the other fellow is simply armed neutrality, and the central station man who says to his contractors, "I'll go into the wiring business unless you quit installing isolated plants," is simply substituting the stuffed club for the dagger.

There is plenty of room for central stations and contractors to co-operate constructively. The central station's substantial credit and the contractors' intimate business relationships in the community are factors which can always be turned to advantage. And it makes little difference what the plan of campaign is, so long as there is a plan of campaign in active operation. The contractor must see tangible return upon his co-operative effort.

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#### THE SEASON FOR PLANNING

"The good old summer time" was invented, we are firmly convinced, for the purpose of allowing men time to plan the coming year's work. Some people believe it was designed as a period of rest from the past season's battles, but these are the weaklings. Nobody needs rest, but all of us need leisure—leisure to think and plan. In the rush and hustle of modern business, with typewriters crackling like machine guns and telephones distracting us by their insistent summons, we are fortunate to get through each day's work without thought of the morrow. But when summer comes, the speed slackens and we can stop to ponder, take time to study the problems of the future. It is a fortunate thing. Working without a plan is like building without foundations—it suffices for temporary needs, perhaps, but nothing lasting can come of it. The summer days belong to the future. Use them as they should be used, to plan wisely, thoughtfully and well.

## More N. E. L. A. Commercial Papers

*Abstracts of Some of the Papers Read Before the Commercial Sessions  
of the National Electric Light Association Convention,  
St. Louis, May 22 to 27*

### High Efficiency Lamps—Their Effect on the Cost of Light to the Central Station

*By S. E. Doane, Chief Engineer National Electric Lamp Association, Cleveland, Ohio*

It became obvious to the lamp manufacturer when the new high efficiency lamps came upon the market that there were many problems connected with their use concerning which we should have information. These lamps were so much more efficient than any with which we had had experience, that there was no basis from which it was possible to determine just what course to follow in placing the new lamps before the lighting industry and the public.

Under such circumstances our only recourse was to determine the best policy to follow from a careful analysis and study of the conditions under which the lamps were to be employed.

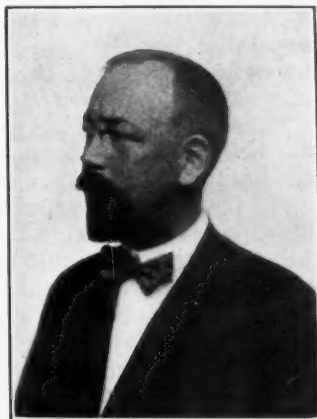
The author of this paper consulted Central Station men of much experience from all parts of the country who operate all types of stations. A number of the men of the author's staff have been employed for a period of over two years collecting and working up statistics and data from all available sources.

It is most surprising to find that although a great many papers have been written in the last twenty years on this subject and derived questions, practically the only statistical information which is available for independent discussion is to be found in the reports of the United States census and in the reports of the various state commissions.

Among all the papers, articles, discussions, etc., the contributions of two men who have been recognized as pioneers in the discussion of certain

fundamental features of the subject, stand out by themselves. Practically all of the contributions other than those of these two men have dealt with details of the broad plan of cost analysis proposed by one or the other, or both.

Dr. John Hopkinson, F. R. S., in the presentation of his address on the "Cost of Electric Supply," delivered before the Junior Engineering Society in London in 1892, succeeded in estab-



S. E. Doane

lishing a broad principle which, if it had been recognized to any extent previously, had never before been presented to the public in such an authoritative or conclusive manner that it was recognized and accepted by the industry as a whole. Dr. Hopkinson divided cost into fixed and operating classifications, which division is universally recognized and conceded today to be correct.

Mr. Doherty, in 1900, presented the same idea, having worked it up independently, but Mr. Doherty proceeded to further divide the fixed costs, showing that it was not proper to



apportion them entirely by the customer's maximum demand.

Inasmuch as Mr. Doherty absolutely and completely recognizes Dr. Hopkinson's division of costs into fixed costs and operating costs, but goes further, in that he separates the fixed cost into two subdivisions, it is obvious that if we attempt our cost analysis on the basis suggested by Mr. Doherty, that it is entirely possible for us to view it from the standpoint suggested by Dr. Hopkinson by combining the two divisions of the fixed cost, whereas the contrary is not true, consequently throughout this paper we have proceeded along the lines indicated by Mr. Doherty with the expectation that the paper will be of equal value from either the Hopkinson or Doherty standpoint.

In discussing the effect of the high efficiency lamp on Central Station costs, let us first agree upon the premises on which we base our analysis and argument.

First. Let us agree that our discussion is limited to the lighting load.

Second. Let us agree that in order to obtain a fair average and to include the yearly mid-winter peak, our analysis must cover a period of at least one year.

Third. Let us agree that the average equipment in the country as a whole must be considered to be not excessive for the maximum demand, from the standpoint of a cost analysis.

Fourth. Let us agree that every item of out-go, including dividends, interest, depreciation, obsolescence, and all losses, are as much items of cost as the usual items of coal, labor, etc.

As a basis for the discussion which is to follow, I wish to present the results of a careful cost analysis of a number of Central Stations, which is summarized in Table 1. In this table four separate cases, designated as *a*, *b*, *c*, and *d* are shown, together with their weighted average.

In the following table, *a* represents a large Central Station giving free renewals, *b* represents another large

Central Station operating under considerably different conditions, but also

TABLE 1  
Central Station Cost Analysis

Item		% of Total Station Expense	Output	Demand	% Item Proportional to Consumers
General Expense	<i>a</i>	12.7	.....	75.4	24.6
	<i>b</i>	14.5	.....	71.0	29.0
	<i>c</i>	10.2	.....	82.8	17.2
	<i>d</i>	10.9	.....	80.0	20.0
	<i>W</i>	12.0	.....	76.9	23.1
Distributing Expense	<i>a</i>	15.2	50.2	26.4	23.4
	<i>b</i>	9.7	44.7	21.4	33.9
	<i>c</i>	17.8	50.6	24.7	24.7
	<i>d</i>	12.8	31.8	56.9	11.3
	<i>W</i>	14.4	47.0	28.9	24.1
Generating Expense	<i>a</i>	13.4	80.7	19.3	.....
	<i>b</i>	17.7	74.6	25.4	.....
	<i>c</i>	32.1	70.3	29.7	.....
	<i>d</i>	32.3	67.9	32.1	.....
	<i>W</i>	23.9	72.0	28.0	.....
Taxes and Insurance	<i>a</i>	8.1	.....	80.0	20.0
	<i>b</i>	10.9	.....	86.2	13.8
	<i>c</i>	6.8	.....	85.9	14.1
	<i>d</i>	4.4	.....	80.0	20.0
	<i>W</i>	7.8	.....	84.0	16.0
Depreciation	<i>a</i>	11.6	.....	80.0	20.0
	<i>b</i>	11.5	.....	79.5	20.5
	<i>c</i>	9.0	.....	85.9	14.1
	<i>d</i>	6.0	.....	80.0	20.0
	<i>W</i>	9.8	.....	81.8	18.2
Interest and Dividends	<i>a</i>	39.0	13.1	68.1	18.8
	<i>b</i>	35.7	27.2	55.1	17.7
	<i>c</i>	24.1	26.4	61.4	12.2
	<i>d</i>	33.6	8.9	73.7	17.4
	<i>W</i>	32.1	19.7	63.7	16.6
Total.....	<i>a</i>	100.0	23.5	58.5	18.0
	<i>b</i>	100.0	27.2	55.1	17.7
	<i>c</i>	100.0	37.9	50.8	11.3
	<i>d</i>	100.0	28.9	59.5	11.5
	<i>W</i>	100.0	30.3	55.1	14.6

*a* Represents a large Central Station giving free renewals.

*b* Represents a large Central Station giving free renewals.

*c* Represents the average of about 70 Stations in the East.

*d* Represents the average of about 40 Stations in the West.

*W* Weighted average.

giving free renewals, *c* and *d* represent the average conditions of a number of small Central Stations. There are

about 70 Central Stations in the East, represented in *c*, and about 40 in the West in *d*.

We have analyzed the figures of Central Stations of lesser size than the two large ones indicated by items *a* and *b*, and of greater size than those indicated by items *c* and *d*. The figures are not of interest excepting to confirm the findings in the table.

The percentage distribution of the total cost under the items *General Expense*, *Distributing Expense*, *Generating Expense*, etc., is shown separately for each of the four cases represented in the column headed *Per Cent of Total Station Expense*. Each of these items has been further analyzed and distributed by percentage under one or more of the headings as shown in the last three columns of Table 1. The portion of each item charged to *Output* represents the relative proportion of the cost which depends upon the number of kwh. generated. The portion charged to *Demand* represents the relative proportion of the cost which depends upon the capacity of the station, which in turn depends upon the *Demand*. The portion charged to *Consumers* represents the relative proportion of the cost which depends upon the number of consumers connected and served. The analyses were actually carried out in considerably greater detail as to the items of expense considered but have been grouped under a few general heads in Table 1 in order to present the results in a simple form.

In preparing the foregoing table, each item of cost has been carefully considered and has been listed under fixed cost or operating cost, or has been divided and part listed under one head and part under the other. The fixed costs have been divided into two subdivisions, one of which we call the *Demand Cost*, the other the *Consumer's Cost*. After a proper allowance for the diversity factor, this demand cost, expressed as a fixed charge per kw. of maximum demand, indicates, in our judgment, the amount which would properly cover the cost

involved in supplying the maximum demand. This cost is one of the two components which go to make up the total fixed cost. It may be claimed that this demand cost is not the same per kw. of maximum demand for all sizes and classes of customers. The advocates of this view tend to increase the demand cost per kw. of demand to the small customer, consequently any concession to this view magnifies this feature of the cost analysis for customers of the average size, and smaller customers.

The customer's component of the fixed cost, for the average customer, is a cost which an individual customer causes, whether or not he actually consumes any current. It will be claimed that this customer's cost is also not fixed. The tendency in supporting such a claim is to decrease somewhat such cost for a small customer.

We applied the following rules to determine these cost divisions:

If an analysis of any item showed that an increase of 100 per cent in the number of customers, without the total output or total demand necessarily being increased, would presumably double the expense, such we will say as in the reading of meters, we would class that item as an expense which varied directly with the number of customers, that is, it would be 100 per cent consumers' expense.

If a particular item of cost would be doubled with an increase of 100 per cent in the capacity of the plant, even though the number of customers remained the same, we would put that item in the class which varied directly with the demand.

In a similar way, items would be classified under output.

An analytical separation of these costs develops curious conditions. For illustration, the coal consumed in the station does not vary directly with the output. It depends in part upon the maximum demand. It takes more coal to supply a given number of kwh. with a high demand or peak than with a low one. This shows

that we must put a portion of the cost of coal under the demand cost and a portion under the output cost.

There are many other fixed and operating costs which do not fall entirely under any single one of these three general divisions of cost. As a further example, an actual destruction of transformers or apparatus in service could not be said to vary with demand, but is rather a profit and loss matter. Losses through floods or other losses of such general character, even though they be costs of repair of generating apparatus which it would seem might belong to demand cost, might really have to be distributed as a loss and hence be considered as a negative profit and be applied to all three divisions of cost.

There is another phase of the matter. Invested capital may be so applied in anticipation of future needs that the cost of an item for double the service now being rendered need not necessarily be double the present cost. A building which at present is not being utilized to its full extent would arbitrarily place a higher charge against a certain division of cost than at first thought would seem to be justified. It might be shown, however, that had the building been built the exact size when the plant was first constructed that further construction would have been so expensive that when the proposed capacity of the larger building would have been reached in this manner that the larger building was much the cheaper, counting all the interest, additional charges, taxes, etc.

There are many vexing questions of this character and there is much opportunity for extended consideration of this broad question of cost when once the basic principles shall have been firmly established by usage. These questions of detail, however, are not usually of sufficient magnitude to affect our broad deductions appreciably.

Many of these questions arise when one begins to consider the classifications of the fixed costs or charges.

These classifications require the inclusion of some charges along with those which are really fixed, which are not generally considered as fixed charges. There are many general office charges and some station costs, such as in the class of the supervisory and technical salaries, etc., etc., which are fixed from the standpoint of a going concern, but which might disappear or be reduced in case such a concern was purchased by another.

As we go further into this subject, the extreme importance of the consumer's cost, especially in the case of the small consumer, must be conceded, and, consequently, we have distributed these costs with extreme care.

We believe that the percentages we give in the table are conservative and that they indicate, at least, the nominal cost at which a new customer can be added to the system on the present basis.

We must concede that every customer, no matter how small, must have a pair of wires and necessary poles, fixtures, conduits, etc., to bring the wires to his premises. We must concede that he must have a meter or some current limiting device and that he must demand some attention in the way of meter reading, inspection, billing, etc., etc. Consequently, we must all agree that any given customer, as pointed out by Mr. Doherty, costs the Central Station some definite minimum amount per year or average month, even though it may be that he uses no current whatever.

The three divisions of costs, indicated above, are commonly referred to as the *Demand Cost*, the *Consumer's Cost* and the *Output Cost*, and in analyzing costs of rendering service and energy to individual consumers, are conveniently expressed as unit costs in terms of kw. of maximum demand (or equivalent unit, such as floor space illuminated or light delivered), the customer, and the kwh., respectively.

It is a matter of much interest to discover that, although individual



cases differ from each other, the differences are largely cancelled in the final summary. The station which has a large distribution net-work, and a few customers, will probably have a relatively large cost per consumer. The plant which operates with water power or whose investment is large for physical reasons, would have a large demand cost. Either or both of these cases may be warranted by a very low kwh. cost due to the use of cheap coal or water power, etc.

The two large Central Stations mentioned in items *a* and *b* of the table have rather large average customers. Their average customers consume about 3.6 and 2.3 kw., respectively, at the time of maximum demand.

The Massachusetts Commission report would indicate that the average customer of Massachusetts consumes about 1.5 kw. at the time of maximum demand. The Wisconsin Commission report would indicate 1.8 kw. as the average maximum demand.

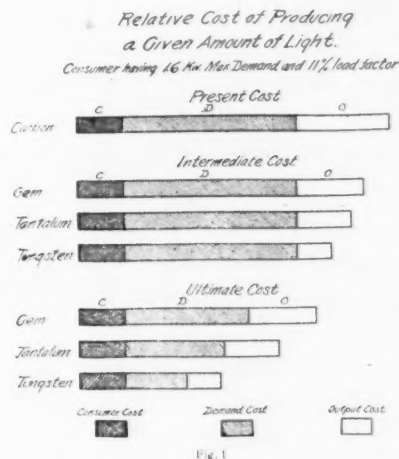
The average customer referred to in Mr. Lloyd's paper, read before this association a year ago, shows that the lighting customers he considered consumed about 0.7 kw. at the time of maximum demand. We understand, of course, that Mr. Lloyd does not mean that this is the average size of the Chicago consumer, but is only the average of the particular classes which he discussed. Mr. Lloyd's discussion before this association meeting last year also showed the load factor to vary from 5 to 26 per cent. Our observations would tend to confirm these figures and our further analysis indicates that 11 per cent is about the right load factor to apply to the average consumer. We have also assumed that a load factor of 7 per cent may represent a short hour user and a load factor of 20 per cent a long hour consumer.

The term "load factor" in this connection is used to mean the percentage which the actual kwh. consumed in a year bears to the total number of hours in a year, namely, 8760 times the maximum demand.

With the figures in the foregoing portion of this paper as a basis, we have plotted some diagrams which show the effect of the adoption of the high efficiency lamps by a customer of 1.6 kw. maximum demand and 11 per cent load factor. (See Fig. 1.)

We have chosen to graphically represent the relative distribution of the three items of cost entering into the cost of serving the individual consumer under various conditions by rectangles divided into three parts, which show, according to the relative size of the parts, the magnitude of the several items of cost.

The fixed customer's cost is indicated by the letter *c*. The total de-



mand cost for 1.6 kw. maximum is indicated by the letter *d* and the total cost of the kwh. actually consumed is represented by the letter *o*. In this chosen representation *c* is 14.6 per cent of the total, *d* is 55.1 per cent, and *o* is 30.3 per cent of the total. This, you will note, represents the average figures obtained from the foregoing tabulated analysis.

The first single rectangle in Fig. 1 represents the cost of the average consumer, which we have assumed to have 1.6 kw. maximum demand and a load factor of 11 per cent. Let us assume now for a moment that this average customer changed to some one of three high efficiency lamps,

and obtained the same amount of light as before. The result is shown in the middle group of diagrams in which the longest parallelogram shows the effect on the cost of the adoption of the gem lamp, the next the tantalum lamp, and the third, the high class tungsten filament lamp. You will note that without adding any new customers, the Central Station is unable to reduce the demand cost, which is charged against the customer, and that the sole reduction in cost is therefore due to the reduction in the number of kwh. required to produce the same amount of light in a more efficient manner.

In the illustration before you, the

In all these assumptions, the renewal cost of the lamp has not been considered to have increased, since it is believed that the general practice of Central Stations everywhere is to charge the difference between the cost of the carbon lamp and high efficiency lamps to the customers and as this cost of light is being considered from the standpoint of the Central Station, the cost of renewal does not figure therein.

In the same diagram the lowest group composed of the three short rectangles shows what happens when the station has added enough customers to entirely utilize its output after every customer has been changed to

*Relative Cost of Producing  
a Given Amount of Light  
Consumer having 0.5 Kw. Max. Demand and 7% load factor*

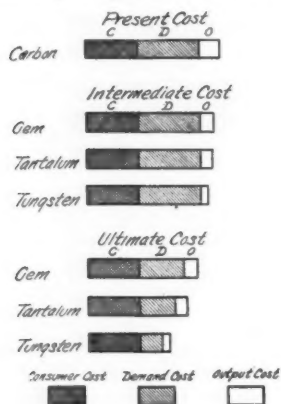


Fig. 2

immediate reduction of cost due to the adoption of the gem lamp is 8.7 per cent, the reduction due to the adoption of the tantalum lamps is 13 per cent, and the reduction due to the adoption of the high class tungsten filament lamp is 19.5 per cent. It is evident, therefore, that even though the consumer's consumption of energy is reduced two-thirds, the cost of light is only reduced by two-thirds of that portion of the cost which varies with the kwh. The total cost reduction is, therefore, only about 20 per cent instead of 60 per cent.

*Relative Cost of Producing  
a Given Amount of Light  
Consumer having 0.5 Kw. Max. Demand and 20% load factor*

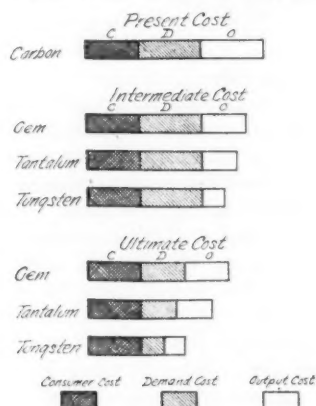


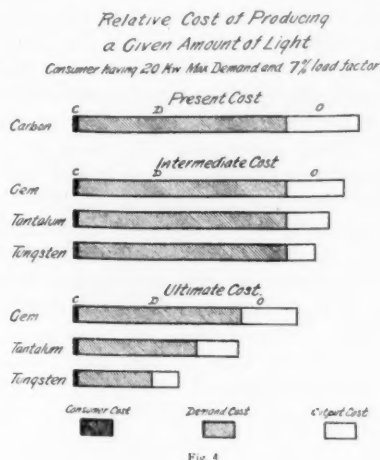
Fig. 3

high efficiency lamps. This shows that by the adoption of the high class tungsten filament lamp the cost of producing light for the average consumer is reduced 55 per cent.

A tabular expression of these diagrams is given later in a complete summary.

The total cost to the Station for the individual customer can be determined when the maximum demand and the load factor are known. Assuming a customer of small size, having, we will say, 0.5 kw. as maximum demand, let us analyze the cost con-

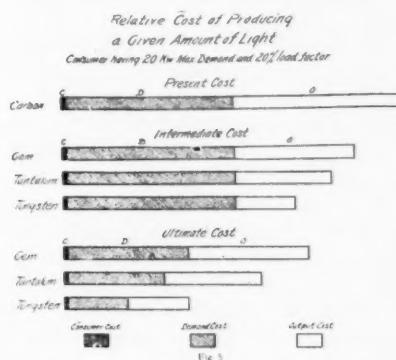
ditions with both short and long hour use as represented by load factors of 7 per cent and 20 per cent, respectively.



The results are indicated in Figures 2 and 3.

We find that when such a customer is a short hour user that the cost of kwh. is only about 16 per cent of the total cost, when the customer uses carbon lamps and is only about 6 per cent of the total cost when the customer uses the highest efficiency lamp, and we further develop the astonishing fact that even when such a customer receives the maximum benefit of this

of actual energy consumed is still only about 10 per cent of the total cost of carrying such a customer. Further reference to the comparative values shows that even in the case of a long hour user having the same maximum demand the kwh. consumed cost the Central Station but a very small part of the total cost for the customer. Most of the cost in the case of the small consumer is involved in supplying service of one character or another. These diagrams indicate that the high



efficiency lamp materially reduces the cost of producing a given amount of light for such a customer, but that in the case of the average small customer, the reduction in cost is in no sense comparable with the reduction

TABLE 2  
Relative Cost of Serving Various Customers

Consumer	Present Cost	Intermediate Cost				Ultimate Cost		
	Carbon	Gem	Tantalum	Tungsten	Gem	Tantalum	Tungsten	
Average.....	100.0%	91.3%	87.0%	80.5%	75.6%	63.8%	45.1%	
Small—Short hr.....	100.0%	95.5%	93.2%	89.8%	82.5%	73.8%	60.6%	
Small—Long hr.....	100.0%	88.1%	85.0%	77.4%	80.0%	70.0%	54.9%	
Large—Short hr.....	100.0%	92.7%	89.1%	83.6%	71.8%	57.8%	36.7%	
Large—Long hr.....	100.0%	85.9%	78.8%	68.2%	71.7%	57.5%	36.3%	
Consumer	Kw. maximum demand				Load Factor			
Average.....	1.6				11%			
Small—Short hr.....	0.5				7%			
Small—Long hr.....	0.5				20%			
Large—Short hr.....	20.0				7%			
Large—Long hr.....	20.0				20%			

new lamp by addition of enough customers to employ the entire capacity of the Central Station, when utilized with high efficiency lamps the cost

in energy required for a given quantity of light.

Figures 4 and 5, representing a large consumer, show a very different

situation, as it will be observed that the consumer's cost is an insignificant proportion of the whole. The first reduction in cost due to the use of high efficiency lamps by a short hour customer, of this size, is only about 15 per cent when such a customer uses the highest efficiency lamp most advantageously. A total summary of the foregoing diagrams follows.

Each consumer is assumed to use the same total amount of light after changing to the high efficiency lamps as was used with the carbon lamps.

The logical effect of the high efficiency lamp is to increase the number of small consumers. This means an increase in the proportion of the Central Station expense for labor in connection with the distributing system and the accounting, etc., which we have classified under "Consumer's Cost." The addition of many new customers will improve the load factor of the station somewhat, as there is no reason to assume that the day load, which is not a lamp load, will not increase with an increase in the number of customers, even though the current consumed at the time of maximum demand does not increase because of the high efficiency lamps.

It is of course obvious that a Central Station could always take care of an increased number of customers without using high efficiency lamps, by increasing the size of the plant, but it is also obvious that the use of the high efficiency lamps will allow it to greatly increase the number of customers served without materially increasing the station and generating investments.

Table 3, which follows, shows, on the basis of the foregoing statistics, what, in a general way, might be expected when that time in the future arrives, when all of the Central Station customers have changed to the highest efficiency lamps. Of course, we know that the time will never come when every lamp on the circuit will be of the highest efficiency. We, however, can assume any value we may desire

and for the exception still use the table which follows.

The table is drawn up on the assumption that every customer in the future will have changed to the use of high efficiency lamps. It is anticipated, of course, that between now and the time when this condition will have been reached, that each station will have increased its number of customers, consequently, we have made our assumption to include all percentages beginning with no increase in customers and ending with 180 per cent increase in customers, at which time, the station will be again entirely loaded. This table, of course, is drawn up on the further assumption that a customer will not increase the amount of light he uses at peak hours. I firmly believe this assumption is warranted in the case of the domestic user and that it is warranted in essence in all cases, as I believe that we are rapidly reverting to a condition of somewhat increased light, perhaps, but not to an increase sufficiently great to materially affect this assumption.

This table clearly shows that those costs which we have classed as the consumer's costs, which are the costs per customer for distributing the current generated, are the costs which concern the Central Station to a constantly increasing extent. The investment in meters and the length of line necessary to run to reach a customer, the location of meters to facilitate reading and details of this character will be of considerably greater importance to the station man than the efficiency of the generating apparatus.

It has been suggested to the writer that the customer's cost can be reduced 50 per cent, when several ends have been accomplished, among which is the universal adoption of a cheap meter, a current limiting device or something equivalent to either, or both, etc., etc. This is a matter of speculation, but it is interesting to observe from the table that such a 50 per cent decrease would allow the Central Station to carry 180 per cent

more customers with the same gross cost, at which time, the cost per kw. would be no greater than at present, and at which time, the total average cost per customer (please do not confuse this with the customer's component of the fixed costs) on the basis of our assumption, would be decreased

more, in showing that even when the station again becomes fully loaded, the cost per kwh. will be about 25 per cent greater than it is at present.

The effect of the high efficiency lamp has been to profoundly modify commercial practice. The possibility of these lamps being made more

TABLE 3

Effect on Station Cost and Output Produced by Adoption of the Highest Efficiency Lamps

(Assuming that each Consumer produces the same amount of light with highest efficiency lamps as with the lamps of low efficiency.)

Number of Consumers in % of the number supplied at present with low efficiency lamps	COST TO STATION				Kw-hrs. Consumed and maximum demand in % of that with low efficiency lamps	RELATIVE COST	
	Consumer	Demand	Output	Total		* Per Kw-hr.	Per Consumer
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
100% using low efficiency lamps.	14.6	55.1	30.3	100.0	100.0	100.0	100.0
Changed to the following per cent using highest efficiency lamps							
100	14.6	55.1	10.8	80.5	35.7	225.0	80.5
110	16.1	55.1	11.9	83.1	39.3	212.0	75.5
120	17.5	55.1	13.0	85.6	42.9	200.0	71.4
130	19.0	55.1	14.1	88.2	46.4	190.0	67.8
140	20.4	55.1	15.1	90.6	50.0	181.0	64.7
150	21.9	55.1	16.2	93.2	53.6	174.0	62.1
160	23.4	55.1	17.3	95.8	57.2	168.0	59.8
170	24.8	55.1	18.4	98.3	60.7	162.0	57.8
180	26.3	55.1	19.5	100.9	64.3	157.0	56.1
190	27.7	55.1	20.6	103.4	67.9	152.0	54.4
200	29.2	55.1	21.6	105.9	71.4	148.0	52.9
210	30.7	55.1	22.7	108.5	75.0	145.0	51.7
220	32.1	55.1	23.8	111.0	78.6	141.0	50.4
230	33.6	55.1	24.9	113.6	82.2	138.0	49.6
240	35.0	55.1	26.0	116.1	85.7	135.0	48.4
250	36.5	55.1	27.1	118.7	89.3	133.0	47.5
260	38.0	55.1	28.1	121.2	92.9	130.0	46.6
270	39.4	55.1	29.2	123.7	96.5	128.0	45.8
280	40.9	55.1	30.3	126.3	100.0	126.0	45.1

to 36 per cent of the present total average cost per customer.

It is most interesting to note that when a station has added 80 per cent more customers that its total cost will have again reached the present cost, but that the cost per kwh. will be about 60 per cent greater than at present. It is most interesting, further-

efficient as the weeks pass makes it necessary for the Central Station to adopt policies, programs and methods which not only will take care of the present high efficiency lamp situation, but which will provide for any increase in efficiencies in the weeks, months and years to come.

Ductile tungsten wire has been



produced and it is a most reasonable expectation that the high class tungsten filament lamps ultimately will be hardy and capable of satisfactory employment in houses or elsewhere where the supposed fragility has been argued against them. Every customer on a Central Station circuit will ultimately purchase and use lamps of this character.

The situation contains a menace which cannot be ignored, and a promise which must be fulfilled.

The menace is in the fact that the reduction in the cost of providing light to the average customer can never be so great as the customers expect.

He inevitably associates that two-thirds reduction in current consumed with a two-thirds reduction in cost.

The decrease in cost of furnishing light with the high efficiency lamp is almost entirely measured by the ability of the Central Station to take on additional consumers who can assist in bearing the fixed expenses.

The promise lies in the opportunity.

Never in the history of our industry has there been the opportunity which now presents itself to the Central Station for increasing the number of its customers, decreasing the cost to each of them, and increasing profit to itself, through the use of the high efficiency lamps.

### Residence Lighting

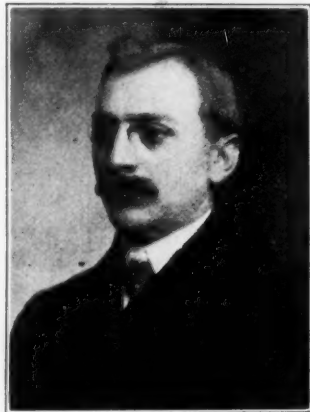
*By Henry J. Gille, Commercial Agent, Minneapolis General Electric Co.*

Residence lighting is among the most important subjects confronting central station men today, as it is the largest undeveloped field for the use of our product.

Residence lighting does not differ materially in different cities. The density of population may vary somewhat, but so far as the use of light in the individual home is concerned, it is practically the same. The use of heating devices and fans may vary, but this does not materially change the average results. In the average city, where commercial lighting and

power have been developed, the peak of this class of business comes on earlier in the evening than the peak for residence business, so that the increase in residence business does not increase proportionately the demand on the station and distribution system.

From data which has been presented to this Association at previous Conventions, it would appear that less than 50 per cent. of the residence lighting peak overlaps the commercial lighting and power peak. We should, therefore, be able to improve very greatly our total station load-factor by means of this class of business and thus assist in reducing the average



Henry J. Gille

cost of production and distribution of all our business.

In serving a large number of residence customers the question of relation between the total of the individual customer's demands and the total station demand (being known as the diversity factor) is a very important matter, because it determines to a large extent the relative cost of furnishing this class of service. This ratio is to some extent dependent upon the number of customers served, as well as the class of homes; separate dwellings having a different ratio from flats, and small houses different from large. The difference in these classes from the standpoint of cost to serve is,

however, not so great as to prevent the establishing of a general class of residence lighting independent of commercial lighting.

There is not sufficient data available to form any very definite conclusions; but from what has been presented to commissions and from discussions at various conventions, the diversity factor for residence lighting appears to vary from 1:4 to 1:5. It seems certain that it does not require much more than about one-quarter of a kilowatt of station capacity for every kilowatt of consumer's demand based on the total residence lighting load. It is therefore obvious that if our average revenue for each residence consumer is \$20 per year, and the average consumer's demand is one kilowatt, the average gross revenue per kilowatt of station demand would be \$80 per year. This total revenue is not far from the average gross revenue per kilowatt of maximum station demand at the present time, for combined commercial light and power, when the diversity factor between these classes is taken into consideration.

Residence lighting is, therefore, not only profitable in itself but makes our present business more profitable. Therefore, I think, we should have, not two general classes of service, light and power, but three—commercial lighting, power, and residence lighting, and if all three are well developed it will be found that each class bears a definite relation to the total station demand and contributes to the increase in load-factor, which we are striving to obtain.

It may be interesting in this connection to consider roughly the possibilities of this class of business. According to reports, over 50 per cent of the population of the United States lives in cities and villages; therefore, with our population of approximately 80,000,000, about 40,000,000 people or 8,000,000 families are prospective users of electric service. If we assume an average of 15 50-watt lamp equivalents per family, it appears that the

total prospective business amounts to 120,000,000 50-watt lamps or 6,000,000 kilowatts of connected load, not including heating devices. At the above diversity factor of 1:4, the station capacity required to furnish this service would be 1,500,000 kilowatts, and on the assumption, of an average gross earnings per family of \$20 per year, the total gross earnings from this business would be \$160,000,000 per annum. Of course, it is difficult to state just what proportion of this business is developed, but I think it is safe to say that it is very small. Hence, if we assume that these figures are even approximately correct, it is very evident that an enormous field for the use of our service has practically been neglected.

Aside from the economic question of residence lighting, every public utility assumes an obligation when it undertakes to furnish the public with any service. The position it occupies in a community, therefore, depends not only upon its furnishing good service at reasonable rates but upon how well it serves that community. We realize fully the necessity of occupying the territory, as the success of any public utility depends to a very large extent on the greatest good that will come to the greatest number. Therefore it must be evident that it is not only profitable but highly desirable to develop residence business. In order to accomplish this it is necessary that the public should understand our rates, our methods of production and distribution, the conditions surrounding the furnishing of service, and the best and most economical manner of using it, as well as the great benefit to be secured from its use.

How can we best accomplish this? How can we expect the public to know all about these things unless we tell them? How are we going to get their confidence and support unless they understand, in some measure, the inside facts? The people are eager to learn; they are interested in things electrical. The only danger lies in the fact that they are likely not to learn

the truth, and we should tell them the truth in language they can understand. This resolves itself into a question of education, covering not only the conditions surrounding the furnishing of electric service, but particularly the use of such service. People are not as familiar as they should be with the great comfort, and many conveniences and benefits made possible through the proper installation and use of electric light and electric labor-saving devices in the home. They understand in an impersonal way the convenience, cheerfulness and cleanliness of electric light, and the desire for its use in a general way exists. This desire has been very largely increased during the last year through the introduction of high efficiency lamps and the advertising campaign carried on all over this country, not only by central station companies, but by manufacturers of lamps and other current-consuming devices.

We must not forget that many considerations outside of our immediate field are factors in a residence installation. Interior decoration should be the consistent relationship between light, color, form, proportion and dimension. In music it is an established fact that certain notes used in pleasing combination produce sounds we call harmony; unless the right notes are struck our sensibilities are jarred. In the use of light and color the same immutable law applies.

The constant presence of irritating color is so real as to produce physical distress, and medical aid is often called in when what is really needed is a change of wall paper.

Many houses are left in white for a year or more until the new plaster settles. In this condition a small unit of light is sufficient; but when the decorator completes his work, adding fabrics and wall-paper which absorb and diminish the light, the consumer does not always comprehend why his lighting bills increase, being unaware that the cause is his taste for dark-colored furnishings. These facts

must be understood to be remedied, and it remains for the illuminating engineer to learn by experiment the value of light as it affects or influences color, as well as the value of color as it affects light, in order to determine the amount of light required to produce the best results.

The development of residence lighting, therefore, depends not on the economic question only, but upon the character of the light, its color influence and the structural character of its introduction. Any plan to develop residence lighting must include the co-operation of architect, contractor, fixture dealer and decorator. They are important agents in the proper installation and arrangement of the electrical equipment, and are in a position to materially assist us in bringing to the attention of the public the value of electric service in the home.

The public uses our service, not from compulsion but from choice. The desire for it may in a general way exist but through some misunderstanding, fear of danger, high cost of current, cost of installation, lack of information regarding proper methods of wiring or use of current, or numerous other reasons, the choice be delayed. It is therefore necessary to prosecute a vigorous campaign of well-planned publicity in addition to energetic and enthusiastic personal solicitation to correct erroneous impressions and properly place the true merit of our product before the public.

### **Central Station Advertising— A Report**

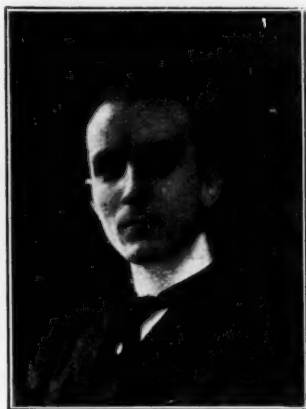
*By Howard K. Mohr, Advertising Manager,  
Philadelphia Electric Co., and C. W. Lee,  
New York City*

During the past five years the central station advertising field, as well as its methods, has undergone considerable change. We find a number of the companies who were the very first to advertise still sturdily maintaining, and even increasing, their yearly advertising expenditure. Many other companies, who five years

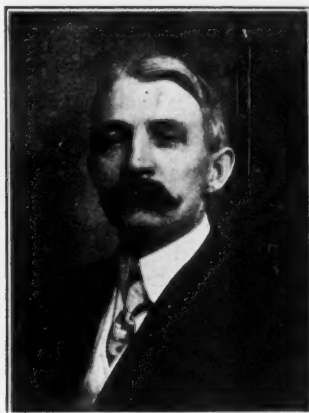
ago emulated these same originators, have either ceased all systematic advertising or have entirely changed their ideas and methods. A third group, not sufficiently organized to maintain their own advertising departments and who, a few years ago, took advantage of the various syndicate advertising campaigns offered them, have, through lack of sufficient supervision or of personal interest within their own organizations, either abandoned the more or less half-hearted campaign or are still proceeding in a desultory manner with a limited advertising appropriation and with more than a limited chance for

in an effort to secure large power business suddenly found that when they had awakened interest in their proposition by printed solicitation, they did not have a sufficiently large or well-equipped power soliciting force to properly take care of their inquiries. The progressives among these companies immediately corrected this grave fault in their business-getting organization, and the less said about the companies that failed to do so the better.

The argument made by the average small central station man that, "Of course, the larger companies will get results because they spend large



Howard K. Mohr



C. W. Lee

a return upon the advertising investment.

It has been an almost unvarying rule that wherever a central station has started a sincere advertising campaign, this very advertising has led to permanent and invaluable reforms in the organization itself. The printed advertisement bearing the name of the company invariably focuses the attention of officials and heads of departments upon the machinery of their organization. It never fails to call attention to faults of service and lack of organization facilities. If this were the only benefit derived from advertising, it alone would make it worth while. A number of the companies who have advertised extensively

sums of money for advertising," is only an excuse behind which to hide. The same methods employed by the small central station with a moderate expenditure can and will produce proportionate results. Of course, the small company cannot have its separate advertising department turning out its own copy and printed matter, but it can secure any one of a number of advertising specialists who will supply copy for newspapers and the necessary printed matter for direct-by-mail advertising, both well written and carefully planned, at a price which is within the reach of any of the member companies. As a matter of fact, many of the largest national advertisers in this country to-day



are employing advertising agencies to prepare all of their copy, even though they have their own regular advertising manager on the ground.

The essential thing in advertising written for the central station by the specialist is that local value in copy should be insisted upon. See to it that your specialist makes a study of local conditions, and then constantly furnish him with local data and interesting news items, so that, even though your copy and printed matter is prepared elsewhere, it will bear the local trade-mark.

There is, perhaps, too great a tendency in central station advertising to generalize; that is, daily newspaper advertising and perhaps mail matter will skip from topic to topic in an effort to cover the entire electrical field, this resulting in good general publicity perhaps, but not in very tangible business-getting results. It would be better to study your load curve, from which it will be easy to decide what character of business would be most desirable and profitable for you. This would simplify your advertising campaign. You could make a drive for power or for electric signs or for store and window lighting, as the case may be, and your manager, after analyzing the conditions, could direct his campaign of soliciting and advertising with this particular object in view, with reasonable certainty of obtaining the business which his load curve shows would be most profitable.

In a paper on advertising, read before an electrical convention some years ago, an analysis of the replies received regarding methods of advertising showed the consensus of opinion at that time to be that newspaper advertising was the poorest possible way for a company to spend its advertising appropriation. Today we find fifty out of eighty companies stating positively that the newspapers form the very best medium of advertising expression for the central station; and the next most popular method is given as direct-by-mail advertising.

A very general use is being made of electric signs in advertising the office location of the company, and also the business of the lighting and power company at various favorable locations in the cities wherein they operate. The maintenance of display rooms and display window lighting has also become very general. The use of bill-boards, however, is very slight.

The use of the street-car card does not seem to be at all popular. It is a form of general publicity advertising which appears only to be indulged in by those companies spending large sums of money each year on advertising as a whole, or by a second class of companies operating traction lines in connection with their electric lighting and power business.

Boiled down to a few lines, we find that companies spending large sums of money employ almost all of the various well-known advertising methods, while a limited expenditure for advertising narrows itself down to newspapers, Company Bulletin, direct-by-mail literature and the use of various booklets, folders, inserts, etc., furnished the operating companies by manufacturers of electrical apparatus and supplies.

The question of what constitutes a fair expenditure for advertising per annum is a very large one, and, speaking very broadly, an appropriation for advertising, exclusive of soliciting, could reasonably be from one to two per cent of the gross revenue of the larger and perhaps from two to three per cent of the smaller companies.

The expenditure of some eighty odd member companies during the year 1909 amounted to a half million of dollars, and this total does not include a number of the large cities such as New York, Boston, St. Louis and Cleveland.

The value of special news stories in your daily papers is considerable. In all but the larger metropolitan dailies it is possible to secure free write-ups, with illustrations of your "modern turbine plants" or your "new water-power station," etc.



Keep in touch with your local newspaper reporters and "special story" writers—it will pay you.

Aside from the vigorous attacks that have been made against all corporations during the last few years, there seems to have arisen in most communities a barrier between the public utility company and the public it serves, be it lighting companies, street railway or water. This barrier might well be named "misunderstanding." It is therefore within the province of the company to break down this barrier by the weapons good service, fair treatment, and right rates, backed by telling its story to the public, concisely, through the medium of the daily press.

There has been a tendency upon the part of some companies to make protestations, through publicity channels, without endeavoring to make good within their own organizations. With lighting companies the principal bones of contention these days seem to be renewal of franchises, new street lighting contracts and rate ordinances.

Managements have been too prone to let unwarranted newspaper attacks pass unnoticed and to allow public sentiment to foment without making any attempt to defend their position or uphold their rights.

The right kind of copy is most essential in the proper conduct of a publicity campaign. Most any story could be told in a newspaper column, but the story that a public utility company has to tell should be spread over a sufficient period of time to allow the facts presented to seep into the minds of the layman. The copy should be concise and in simple but forcible English. Every manager should study his local newspapers carefully and should know the men who are responsible for the news in his city.

A number of notable publicity campaigns have been carried on in various sections during the past year, covering a variety of issues.

At Fort Wayne, Indiana, a social-

ist mayor, entrenched behind twelve years of political control, was defeated through his advocacy of a municipal plant.

At Scranton, Pa., a 10-year street lighting contract was secured against stiff gas competition.

At Boston the public was aroused through the newspapers into favoring a new electric street lighting contract.

At Altoona, Pa., a 10-year lighting contract was secured by stimulating methods in conjunction with newspapers and Board of Trade.

At Manchester, N. H., a restless community was appeased by publicity methods covering an exposition of the rate schedule.

At Oklahoma City a 25-year franchise was secured through publicity methods.

At Phoenix, Ariz., municipal ownership was defeated.

A number of other cities conducted publicity campaigns for the purpose of securing public good will, without any special issue being involved. These include Omaha, Birmingham, Atlanta, Indianapolis, San Diego and other cities.

By resorting to old-time political methods several street railways and gas companies lost franchises and contracts which unquestionably could have been won through proper publicity channels.

At the present time there is need of State-wide publicity in order to prevent drastic public service commission legislation. This can only be effected through the co-operation of the various companies in the State. Ohio and Indiana have recently passed vicious public service commission bills, and the present temper of the public and of legislative bodies is such that, unless precautionary methods are adopted, other states are sure to follow suit.

Public utility companies themselves are to blame in large measure for the spread of this hostile legislation. We do not refer to individual cases of disregard of public rights, but to the ut-

ter indifference or failure to appreciate the weight of hostile sentiment.

Publicity methods are too frequently resorted to after the cause of the company has been lost, or at best, half lost. There never has been a situation of this sort which, if taken in time, could not have been saved, but prejudice is too often allowed to become deep-rooted before remedial measures are adopted. It is the old story of locking the barn-door after the horse has been stolen.

Every lighting and power company has a right to do business in its community, and its stockholders are entitled to fair return upon their investment. Is there any reason why these rights should not be defended and a logical presentment made to the public?

National advertising, by electrical manufacturers, through the medium of national weekly and monthly periodicals of large circulation, is as yet in its infancy, but no one can fail to appreciate the great impetus to the entire industry which advertising of this character has given and will continue to give, if the manufacturers maintain their present methods of procedure and enlarge the scope of their advertising, with the practical help and active co-operation of the central stations.

The consensus of opinion, as evidenced by the correspondence which your editors have had with the electrical manufacturers who have been doing this character of advertising, is that it has been productive of results. These manufacturing companies are striving to inculcate the electric idea in the masses. The education of our population, far and wide, to the necessity of a liberal and general use of electrical apparatus of convenient, sanitary and economical devices for the home and place of business, together with the benefits derived through the use of electric light and power, cannot fail to react in the most favorable manner, financially and otherwise, upon the central sta-

tions operating in various localities throughout the country.

The central stations, however, particularly those that at present are not doing any advertising, must co-operate in this national advertising scheme if adequate results, compared to the expenditures made, are to be expected. There is not a single small city or town in this country which is not reached by one or more of the magazines and periodicals in which the electric manufacturer has advertised from time to time. They of necessity obtain, without any cost to themselves, the benefits of this advertising, and it would certainly seem, from a standpoint of co-operation, that every electric lighting company could afford to do supplementary local advertising. The direct return for such an expenditure should be certain.

In looking over the examples of newspaper advertising sent to us by the various member companies, it is disappointing to note what little improvement, if any, has taken place during the past few years in copy and display. It should certainly be unnecessary at this late date, to point out the fallacy of buying space in the newspapers, even if only for reasons of policy, and not seeing to it that the space purchased is utilized to the very best advantage.

Good, strong copy is not only essential, but quite possible to obtain. The average central station would do much better to employ an advertising writer than to rely upon the efforts of its own office force in a line of endeavor to which it is quite foreign.

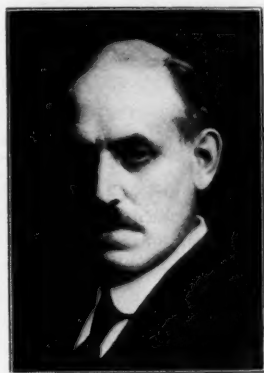
The difficulties surrounding the newspaper advertiser in the small town, with respect to type-setting and display, are manifold and hard to appreciate by those located in the larger cities, where expert work in the advertising department of the daily newspaper is usually to be found, but even unfavorable conditions fail to excuse some of the "horrible" examples which have been sent to your editors. If you cannot receive expert advice regarding advertising in your own

town, purchase it elsewhere, and if you insist upon preparing your own copy, at least obtain advice from people *who know* regarding proper type arrangements and other mechanical details. It would be a very simple matter to obtain comprehensive dummies of form and make-up, which you could submit to your local newspapers and insist that they follow the directions outlined. If it were necessary, you could even purchase type for them, to use in your ads exclusively, at a moderate outlay.

### Decorative Street Lighting

*By E. L. Elliott, Illuminating Engineer, New York City*

It requires no argument, and but little observation, to prove that exterior lighting is far below the standard of interior lighting in this country. In the latter we are unquestionably far in advance of any other nation in the world. From the farmhouse and tenement to the mansion and skyscraper, Americans are liberal users of



E. L. ELLIOTT

light. Compared with our interior illumination, our streets and parks are poorly lighted, indeed; nor will they bear comparison, according to numerous reports, with cities and towns of other countries.

The place to begin putting in more light is the one that is poorest lighted; street and park lighting is, therefore, the natural and logical field for first efforts in the campaign for more light.

It is a most fortunate combination of circumstances that the field in which more light is most needed should also be the one in which good lighting will attract the most public attention. The lighting of the most frequented sections of a city affords an object lesson in illumination which is absolutely unsurpassed in conspicuousness and effect.

Decorative street lighting is a public improvement which stimulates civic pride. It is something in which all citizens feel a special interest. It is, therefore, one of the most powerful means of creating favorable public sentiment toward a lighting company. It shows that light is a good thing, and that those whose business it is to produce light are not the natural enemies of the people but their natural friends.

No commercial institution of a city is more vitally interested in its growth than the lighting company. New residents may do their trading in another town, and extensions of car lines may mean a loss rather than a gain, but the new citizen cannot go out of town to buy his light, and every new one added to the population means profit. A lighting company is logically the chief boomer of its town or city. It should therefore be most active and enthusiastic in promoting decorative street and park lighting.

There is no reason why the central station should not take the initiative in establishing better public lighting. Nine-tenths of the troubles which central stations have encountered at the hands of the public have been due to the fact that they have allowed the public to take them by default. Public sentiment is notoriously an uncertain quantity. It may run along without showing the slightest indication of change for years and then suddenly overflow its banks and carry everything with it. The only insurance against destruction is to be constantly on the alert and ready to ride on the flood instead of being crushed among the debris.

Decorative street lighting should include a city sign. By this is meant an electric sign carrying some motto or slogan intended to boom the town. We are told that "Example is better than precept," and that "We should show our faith by our works," both of which aphorisms apply with peculiar force to the central station in this case. New York's "Great White Way," the prototype if not model of them all, is white and attractive because of the numerous electric signs; and this example should be pondered well by central stations who are endeavoring to increase their load. There are often obstructive sign ordinances which must first be modified or removed. A city sign is the best possible beginning for such a campaign, as the example of Denver will sufficiently prove. Montgomery, Ala., has secured more newspaper publicity through the lighting of its big electric sign than from any half-dozen other events that have transpired there within the past decade. The sign business is one that can be cultivated with an assurance that the results will please everybody. Signs raise the standard of illumination of the streets, add enormously to their attractiveness, and bring profits to those using them as well as to the central station.

It is inevitable that even a small section well lighted will be the means of extending better lighting to other sections and in time throughout the entire city. Philadelphia affords a most comprehensive and convincing proof of this fact. Beginning with an installation of lamp-posts around its city hall, about 18 months ago, the lighting question has been continuously agitated there ever since with the result that its widest business street has a modern installation, and it is probable that the entire original city will be similarly lighted in the near future. The suburban and outlying districts are equally active to secure the benefits of modern illumination.

Better street lighting as a public

improvement is bound to be much talked of by citizens. It gets them to thinking about the subject of light, and so puts their minds in a receptive state for any lighting proposition that may be presented to them, thus making it so much the easier to secure the installation of better systems for interior use.

While any kind of an installation is better than none, no effort should be spared to make an installation of such a character that it will serve as a public improvement, without either deteriorating mechanically or having its attractiveness wear off. On this point it may be well to call attention to the systems that are used, viz., arches and posts. The arch has several faults, which it is well to carefully consider before recommending it in place of posts. First, arches are hopelessly ugly and out of place by day; second, at night they give the street the appearance of being roofed over and shut in; third, they have rather the appearance of a carnival or special celebration than a permanent feature of the city. If festoons of lamps must be used, it is far better to run them parallel with the curb, from post to post. This leaves no overhead obstruction by day, and at night adds greatly to the apparent length of the street by bringing out the perspective. The use of wooden posts or cheap construction should also be discouraged.

Needless to say, every bit of publicity possible should be gotten out of the installation. The night that it is first put into service furnishes an excellent opportunity for a celebration, and might well be made the basis of a "carnival of light," which could continue for several days, according to the size of the town. In some cases a better lighting installation has resulted from such a celebration or carnival—as in Syracuse, N. Y., and Columbus, Ohio. In such events light is, of course, the chief decorative feature, and so impresses itself upon the public.

The writer would hesitate to make the suggestion above outlined, as be-



ing a matter of course and understood by all, were it not for a recent experience which he had in a certain city in New York State. Wishing to further the gospel of "more light," he interviewed the leading editor of the city and several of its business men in regard to putting in a modern lighting installation in its business center. The matter was entirely new to them, but apparently not so new and unheard of as to the manager of the central station. From his general attitude and conversation it might have been easily assumed that he had never seen or heard of a modern decorative lighting scheme. What could be done in that town by a live and aggressive campaign of education on the use of electric light is something to make any up-to-date new business manager's mouth water. It is hardly believable that this particular city is the only one of its class, hence the appeal to others to take advantage of this exceptional opportunity, now afforded by public sentiment, to increase the use of electric light.

#### Brooklyn Company Sign

The Brooklyn Edison Company has just erected an electric sign on the dock in front of its Bay Ridge power house, on the lower New York



Bay. This sign is 200 feet long, with capital letters 18 feet and other letters 12 feet high, and a framework 33 feet in height. Altogether 1962 5-watt, 10-volt multiple tungsten lamps are used on alternating current stepped down in two transformers from 3,300

to 120, and then to 10 volts in 16 transformers, one on the back of each letter.

This is the biggest electric sign in Brooklyn and is brilliantly visible all along the bay and its shores from the Narrows to the Battery. The Edison Company advertises this sign as its latest contribution to "Brighter Brooklyn" and calls attention to other sites along "Brooklyn's incomparable water front" as ideal for electric advertising.

#### Contractors' Convention

The tenth annual convention of the National Electrical Contractors' Association will be held at Atlantic City on July 20th to 22d. The headquarters and registration bureau will be located at Young's Hotel, and the business sessions will take place in "The Chapel" on Young's Pier.

#### Women Secure Lights for Hydeville

Through the interests and industry of the women of Hydeville, Vt., that village will soon be equipped with electric street lights. The contract for the work has been awarded to the Rutland Railway, Light & Power Company of Rutland and the work of installing the service will be begun immediately.

There are to be 13 incandescent lamps located in places most needed, the entire cost of which will be something over \$200. The sum has been raised by the Improvement League of Hydeville, whose members are nearly all women, and the business has been transacted by the officers of the league.

#### Fixture Association Formed

A meeting of the manufacturers of gas and electric fixtures was held in Detroit on June 6th to consider the formation of an Association of Gas & Electric Fixture Manufacturers. The meeting was a very enthusiastic session and the necessary steps were taken to insure a successful organization in the near future.

The following officers were elected:



President, Mr. Albert Morreau, Cleveland, Ohio; Vice-President, Mr. A. T. Jones, New York, N. Y.; Secretary, Mr. John F. Byrnes, Chicago, Ill.; Treasurer, Mr. Ford S. Smith, Detroit, Mich.

### Fifty Irons a Day

There is news of much activity from the Toronto Electric Light Company. The sales department has been increased by three men and two women canvassers and a record is being made in the sale of flatirons and toasters. One week in June, 108 of these devices were sold and an average of 50 irons are being put on trial daily.

### Unique Sign on Mission

*Erected to Counteract the Influence of a Beer Sign*

The Union Gospel Mission of Washington, D. C., has recently installed on the roof of its building what is probably the largest church sign in the world and the most unique.

The sign is 90 feet long, 26 feet high and reads "Jesus, The Light of

are read for blocks down the wide expanse of Pennsylvania Avenue, an ideal site.

The idea of the new sign was conceived and developed by one of the ladies of the Mission who resented the presence of the large beer sign dominating that section of "The Avenue." The Union Gospel Mission is interdenominational and the money for this sign was raised among the various churches, the Sunday School children having undertaken to furnish the money to maintain it.

The word "Jesus," in five-foot letters, burns steadily with an eight-foot star above it, while the lower line flashes. The sign burns about 750 lamps.

### Better Lighting Increases Congregation Ten Times

An interesting story comes from Rochester with comparative figures showing the effect of improved illumination on the attendance at one of the local churches.

Some time ago the pastor of one of the large but older churches called on Mr. R. M. Searle, Vice-President of



Unique Sign in Washington, D. C.

the World," with a star shining above. The primary object in erecting this sign was to offset in some way the influence of a large Anheuser-Busch sign on a nearby corner. The relative position of the two displays is shown in the photograph and both

the Rochester Railway & Light Company, to talk to him about bettering the lighting of the church. He explained that his congregation only numbered 50 or 60 persons at the Sunday night services and that he was casting about for some means of

arousing more interest. Mr. Searle said, "In spite of the fact that your present attendance is so small, I believe that you could fill a good-sized theatre if you preached in one, and the reason is that the theatre is well lighted and warm and cheerful in appearance, whereas your church is cold and dim." And he offered him \$50.00 toward the wiring of his church.

The clergyman was very much impressed and took the matter up seriously at once. A good, efficient installation was planned and about \$700 expended in changing over to electric lighting. The effect on the appearance was immediate and its influence on the Sunday night atten-

dance beyond all expectations, for during the next ten weeks after the completion of the installation the congregation averaged 520 people every Sunday night—ten times as many as before!

The monthly bill ran in the neighborhood of \$20.00 per month, the price of drawing 2080 people to service; or in other words it cost the church a trifle less than one cent each for this attendance. On this evidence it can certainly be demonstrated that no church, however poor, need hesitate to take advantage of the attractive powers of illumination, since the receipts from the collection will surely average far over this figure.

## Sign Growth in Washington

*Methods by which Electric Advertising Has Been Popularized at the National Capital*

By John C. McLaughlin, Chief Clerk, Potomac Electric Power Company, Washington, D. C.

A few years ago Washington was what could be truthfully called an "early city," for after nine o'clock at night the streets were deserted and except for a few bright spots, the theatres, darkness reigned everywhere. This is not a business centre, as we have no factories or wholesale houses, and to bring our merchants up to the idea that night advertising would be beneficial and that they would be making a good investment in erecting an electric sign and keeping their windows lighted, appeared to be just such another job as cleaning out the Augean stables.

Our work at first looked almost hopeless, we met discouragement after discouragement. "Why should we spend our money for electric signs when there is no one on the streets to see them?" was what we were asked in most places. "You get the people to come here at night and we will talk business with you," we were told. Our argument that the people would not come unless the place was lighted seemed to have but little effect. We were very much discouraged, but would not quit, and after a while we

secured a customer for a small illuminated sign, with 24 4-cp. lamps to burn from dark to midnight for ten dollars per month. Later came another, and then another.

We would tell the merchant what his competitor was doing and show him a photograph of the other man's sign, which usually interested, him, and in a great many cases secured an order. So by keeping at our customers, seeing them whenever an opportunity



A Billboard, Washington, D. C.

presented itself, and making friends of them by the different little attentions a solicitor can show a customer, we made them know that we were not alone endeavoring to sell them

something, but at the same time had their welfare in mind. In this manner we secured the confidence of our merchants, so that when we suggested the advisability of erecting an electric sign, they were more willing to give it consideration than they had been a few months before.

I have taken great pleasure in the sign contracts I have secured, and at night can look upon these signs as something accomplished through hard and persistent work. The first order I secured for a fairly large sign was from a hotel keeper. I worked on him about three months, day and night, with apparently no progress. One night I stopped at his hotel, and when he saw me he said, "McLaughlin, I'm darned glad to see you, but if you talk sign to me I'll beat you."

"Why, what's the matter?" I asked.

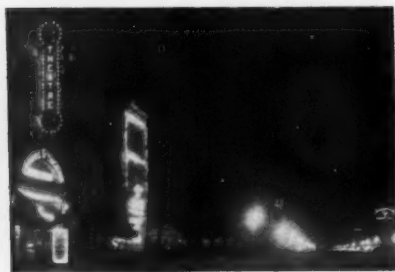
"Oh! your electric signs have gotten

suited to an electric sign, and before I left I had his order.

The moving picture theatres have helped our sign business to a great extent, there being now over fifty of these places in the city, every one of which has an electric sign in addition to its display lights. When the first of these theatres opened, we saw the great field for display lighting and by hard and persistent soliciting secured an order from the owner for an entire electrical installation for the front of the three-story building in which the theatre was located. In the moving picture business the owners are anxious to outdo their competitors in the lavish display of electricity, so we do not have any very hard work getting them to make a large installation.

I sold a large two-sided vertical sign the other day in which the letters were three feet high, and a few days later a similar one to a competitor of the first man. Of course, he wished a sign a little larger than his neighbors, so I got him to take a four-foot letter. I then went to another customer in the same neighborhood, and suggested that he put up a sign with five-foot letters, telling him what the others had done. He was interested at once and the sign is now being erected. I had been after all three of these merchants for quite a while, but could not get them to do anything until I got the first man, when the others followed right along.

I have found that to be successful in placing signs, it is best to first inspect the prospect's store, see what kind of a sign would be most appropriate, secure an attractive design, and then present both design and prices to the customer, for seeing his name in the design is bound to interest him. Having the prices to quote, one is much more liable to secure an order than if, after talking to the prospective customer, it is necessary to wait a week or two for a design. I have followed this idea in a great many cases and am glad to say have met with much success.



Two Moving Picture Displays

on my nerves, I dreamed about signs last night."

I joked a while with him, and as business was not very brisk we sat down and finally got to talking of those things that leave a strong impression on a man's mind. I quickly saw my opening here, and referred to the fact of his dreaming about an electric sign the night before. If my talk about a sign had had such an effect on *his* mind as to make *him* dream of signs, I asked him what would be the effect of a burning sign on his building shining in the eyes of pedestrians. It was then after twelve o'clock, but I got him to walk out front, and look the building over. I pointed out the place I thought best

A scheme which I have employed very effectively within the last few days to secure a contract for a large advertising sign is one which I think can be used to advantage in a great many cases. I have just succeeded in securing a contract for a large sign advertising a local ice-cream which will be placed on the roof of one of our largest drug stores. Some time ago I saw the owner of this drug store and got a price from him for the rental of his roof and while he was showing me through his store I noticed that he made his own ice-cream. I spoke to him about this and asked him why he did not buy it and relieve himself of the dampness and dirt that accumulates around ice-cream freezers. He told me that he could make it much cheaper than he could buy it, but he mentioned that a large local manu-

naturally interested him, for it is very large and I got a better hearing than I would have if I had not been in a position to talk the sale of his ice-cream. After getting him interested in the matter, back to the druggist I went and told him that if he would buy his ice-cream from these people they would be willing to put up the sign and pay him a certain amount per month for the rent of the space. Later the ice-cream man met me at the druggist's and the three of us went over the matter in detail with the result that before we parted I had secured a contract for the sign at \$2,600 a year for a period of five years. This was a three-cornered deal in which everyone was benefited, for the druggist is very well pleased with the idea of renting his roof from which he will now receive a good revenue;



Night Scene in Washington, D. C.

facturer had been after him for a long time to get him to use their product. I asked him if he would buy from the manufacturer if the manufacturer would put a large electric sign on the roof of his building, advertising the ice-cream. He said he would be very glad to consider it.

I secured a design of a sign suitable for the advertising of the ice-cream and then went to the manufacturer and told him that I understood he had been after the druggist for a number of years and asked if he would consider my proposition for a sign if I secured the druggist's business for him. I showed him the design I had secured and quoted him a price. The idea of getting this druggist's business

the ice-cream manufacturer will be able to sell between four and five thousand gallons of ice-cream more per year and we sell the electric service.

It should be possible to work this same scheme in combination with the grocer and the manufacturer of some baking powder or tea, with a cafe and some brand of whiskey, or with a druggist and some candy firm or soap manufacturer. It gives you a concrete proposition with two strings to your bow.

We find this sort of a proposition of greatest assistance in Washington, because we are greatly hampered by a local sign ordinance, which prohibits the advertising of any commodity



which is not sold on the premises. In other words, a national advertiser cannot erect a sign on any roof in the city unless his goods are for sale below. To overcome this obstacle in some cases we have arranged with some tenant in the building to take out an agency for the advertised goods.

We consider the electric sign still in its infancy and are determined to add a great many more installations to the circuits during the year.

#### "Before and After" in Rochester

These two photographs are a good illustration of the striking effect of electric advertising display, being a comparison of the night appearance of East Main Street, Rochester, N. Y., first in the fall of 1908 and again



View in Rochester, 1908

at the present time. At the first glance, the 1908 picture appears to be more radiantly illuminated than the other, but a little study develops a strong contrast in favor of 1910. The former was photographed on a rainy night and as a result there is a great deal of reflection from the arc lights but the dark spots in spite of the wet are darker, as seen in the foreground where there is no reflection.

In the 1908 picture there are three electric signs, one outlined building and three more smaller display instal-

lations. This covers nearly three blocks. At the present time there are eleven signs, three outlined buildings and two smaller displays. This view embraces about two blocks.

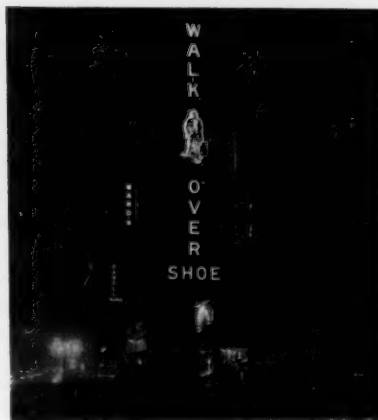
The Walk-Over Shoe sign shown



Same View, 1910

in the later photograph is said to be the first of its kind in the country. The figure of the man first appears in outline, then he has the appearance of stepping over the shoe, and next the words "Walk-Over Shoe" flash one at a time. There are 386 lamps.

The installations shown in the 1908



The Walk-Over Sign

photograph represent an investment by the consumer of approximately \$2,100; it now amounts to \$8,000.



## A Record for Power Delivery

*Spring Plant Burned to the Ground Resumes Operations in One Week*

Down in the southeastern part of Indiana is the little city of Connersville, 12,000 population, which, though not widely known to central station men, claims to produce ninety per cent of the positive blowers used in the United States, and is a carriage and automobile supply centre as well. The Light, Heat & Power Company, the local central station, of which R. A. MacGregor is general manager, recently accomplished the unique feat of winning over a previously unapproachable prospect, and re-energizing

and orders piling up sky-high, the Ansted plant caught fire Saturday evening, March 19th, and so fierce was the fire that in four hours there was nothing left but parts of the brick side walls, badly warped and tottering, and the heavy machinery which looked like grim spectres watching the ruins.

On Monday morning, a representative of the Light, Heat & Power Co. waited on Mr. Ansted and offered him any assistance in his power, at the same time making a strong plea for electric drive, but he was told to



The Ansted Plant After the Fire

his burned-out factory in the short period of two days.

Mr. E. W. Ansted, one of the leading citizens, is a manufacturer of carriage bodies, axles and springs, and when automobiles came into general use was one of the first manufacturers to realize the importance of this outlet for his product. He has made a specialty of this class of business and his output has grown tremendously.

In the rush of this season's work, with every man that he could secure at work, every machine in his plant grinding out springs by the carload

wait until after the insurance adjusters were through. On Tuesday, the same representative called again but could make no headway, and it was Tuesday night before the adjusters had completed their inspection and appraisal.

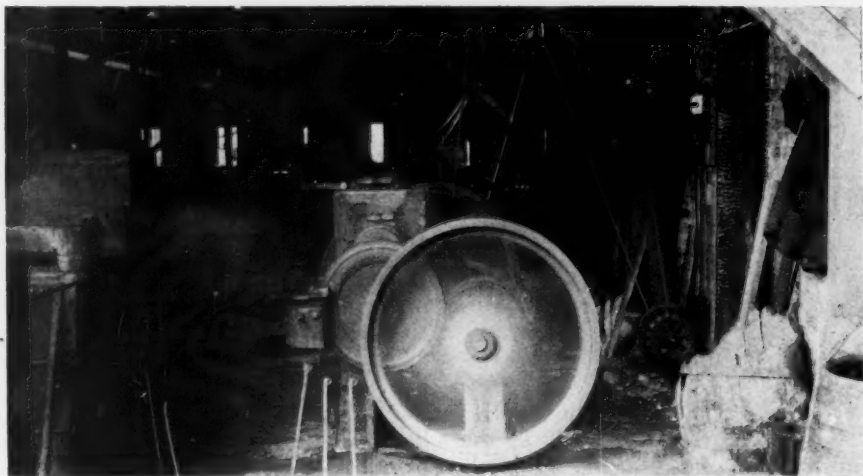
To thoroughly appreciate the situation it must be understood that Mr. Ansted had never been approached on the subject of electric power for his plant prior to this time, so that the central station's work was doubly hard, but on Wednesday morning, bright and early, the power man called once more and found preparations



Temporary Sheds to Protect Motors and Workmen

well under way to put the boiler and engine into service again. He jumped into the fray and showed the spring people that he could have them running in one-third of the time required for the steam equipment, since heavy timbers must be rigged for line shaft, belts, etc. Finally, by persistence and a personal guarantee to have them making springs in less than a week, in so far as the power was concerned, at 10 o'clock, on Wednesday morning, March 23d, the company was directed to go ahead and put the grinding room and the large blower into service.

Connersville, being a small city, practically nothing required for the work was to be had at home, and everything had to be shipped in. Transformers came from Cincinnati, motors from East Pittsburgh, and wire, switches and other material from Indianapolis. Everything necessary was ordered by telegraph and telephone, and came speeding in by express, and while motors and transformers were coming as fast as trains could bring them, the Light, Heat & Power Co. had its full force of men

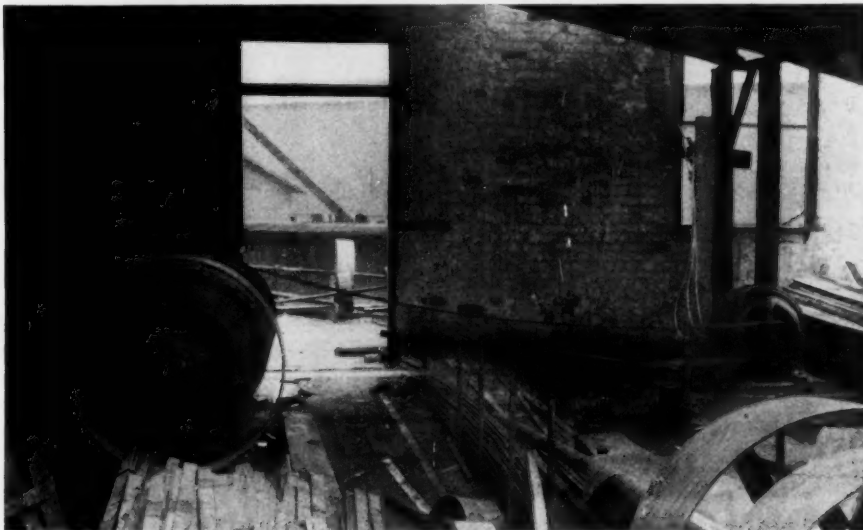


The Motor in the Grinding Room

on the job preparing to put up each piece of apparatus as it arrived.

A line extension was run, transformers and motors set and wired up and at 4 o'clock on the afternoon of Thursday, March 24th, the first motor was started on the blower; at 5 o'clock of the same day, the second motor was put into service. In other words, at exactly eighteen working hours after Mr. Ansted consented to use electric power, he was in a position to make springs. So rapidly was the work carried on that the manufacturer did not lose an order, nor were any of his customers inconven-

plans for the erection of a much larger shop and it is unnecessary to say that it will be absolutely modern throughout, depending wholly upon electricity for power. It is interesting to note that Mr. MacGregor attributes the ability of his company to successfully take care of this emergency call in such record time to the fact that they were prepared. A complete floor plan, with a list of all machinery and the necessary speed and load data, was on file in the company's office awaiting just such an opportunity, and consequently it was possible to order the necessary motors without



Another Motor in the Wrecked Plant

ienched in any way by lack of shipments, for in one week from the Monday following the fire, he was shipping springs.

The total installation consists of one 30-hp. motor in the grinding room, one 20-hp. motor on the blower, with three 7 1-2-hp. motors and two 5-hp. motors running the forging shop in small groups and one 5-hp. motor in the machine shop. The illustrations are a graphic description of the conditions under which this work was carried out, for the ruin was complete.

Mr. Ansted has already made his

delay. This is certainly an eloquent testimonial to the value of preparedness, for though a present efficient steam equipment may be an unsurmountable barrier to the central station, no one can foresee when or how conditions may be reversed, and the ability to act at once is a convincing recommendation for electric power.

Mr. H. Flood, of the Newburgh Lt., Ht. & Pwr. Co., Newburgh, N. Y., has joined the Penn Central Lt. & Pwr. Co., Altoona, Pa., as power salesman.



## Electrical Progress Department



### Sirocco Ventilating Equipments

A small but highly efficient ventilating outfit has been put on the market by the American Blower Company of Detroit. The system is based on a "Sirocco" standard turbine type impeller wheel, 3 inches in diameter, arranged to be used at an ordinary window as shown in the accompanying engravings, and consists of a fan, small electric motor, air filter, window



sash lock to prevent raising the window from the outside and a rustless steel window filler adjustable to standard width sashes. It can be easily attached to any window in the house or office without tools.

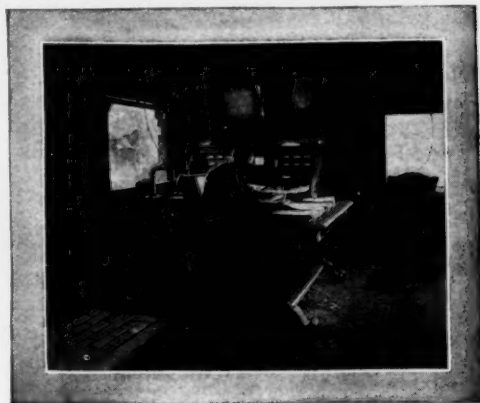
The "Sirocco" fan has a capacity of about 5000 cubic feet of air per hour. It is provided with a reversing switch so that the air may be either drawn in from the outside or discharged from the room. A continuous flow of fresh, pure air is obtained from the outside, which in winter may be deflected downward behind a steam radiator, thereby greatly increasing the efficiency of the heating apparatus. For hot air heating system, the air is drawn through the

room in a constant flow. There is an adjustable outlet nozzle which permits the air to be discharged in any direction and prevents drafts. The air purifier contains filter cloths



which collect the dust and impurities in the air before it enters the room.

This is one of the latest applications of the "Sirocco" turbine fans which are now being used for the ventilation of kitchens, telephone booths, laundries and toilets on land, shipboard and on wheels. "Sirocco" fans have been largely adopted for ventilating, cooling and mechanical draft on the



modern battleships, cruisers, destroyers, etc., in the British, German, Italian, Russian, Japanese and United States navies. The U. S. S. North



Dakota and Delaware, which on recent trial developed such wonderful speed, did so under forced draft supplied by "Sirocco" blowers, and the U. S. S. Florida and Utah, now under construction, are being equipped both for hull ventilation and mechanical draft with "Sirocco" fans. The domestic fan and air purifier described above is made with the same care as the larger apparatus that has established the reputation of the America Blower Company.

#### The Vohr Electric "Ozonizer"

The subject of Ozone generating as a feature of electric service is attracting the attention of central station men in an increasing degree. One of the most recent of the equipments made for this purpose is that devised by the Standard Electro-Utilities Company, 312 Fifth Avenue, Chicago,



Fig. 1

which manufacturers the "Vohr" electric ozonizer illustrated in Fig. 1. Fig. 2 shows the same apparatus with the case removed and without the transformer, which is in practice placed beneath the apparatus shown.

One of the essential features of the device is the use of a small electrically driven fan as an electrode, the second, or inner, fan shown in Fig. 2. The outer fan is simply a suction-fan to help pull the air through the ozonizer

and keep any one from thrusting wires or other articles into the "live" parts. This inner fan, which is of a peculiar pattern and itself constitutes one electrode of the apparatus for producing the brush discharge, is surrounded by a ring of glass 6 in. in diameter and  $2\frac{1}{2}$  in. wide, on the outer surface of which is placed a metal band, the other electrode. There is an air-gap between the fan-blade electrode and the glass ring and the air being drawn in at the other end of the case by the suction of the fans, a portion of the oxygen is converted into ozone as it passes through the violet glow of the brush discharge and discharged through the screened opening shown in Fig. 1.

The product is ozonized air rather than ozone, the quantity of ozone being simply large enough to give the briskness or freshness desired—the "mountain air" effect—for close and stuffy rooms. Means are provided, however, by which the proportion of ozone in the ozonized air may be increased if desired.

These machines may be connected either with 110 or 220 volt circuits, and operated on either direct current or alternating current (60 cycle). If only direct current is available, a specially designed rotary converter is substituted for the alternating current motor used in the case of an alternating current source of electricity. The amount of electricity consumed is said to be about the same as that taken

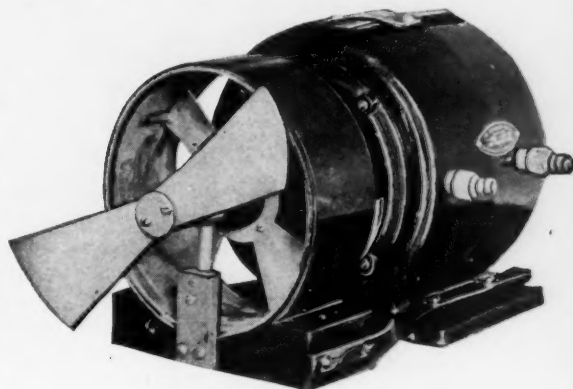


Fig. 2

by one carbon filament, 16-cp. lamp. The device is simple, not apt to get out of order, and requires no cleaning. The Vohr machine circulates a large volume of air mechanically and gives the amount of ozone recommended by experience as being most desirable. Another feature to which the manufacturers direct attention is the fact that the period of ozonization is very slight, owing to the instantaneous passage of air between the electrodes. It is claimed that the longer the ozone, when generated, is allowed to remain in the field of the high-potential discharge, the greater is the possibility that the ozone will be changed back to the oxygen from which it is made, due, partially, to being subjected to great heat for an appreciable period of time and that a long or continuous ozonization is apt to produce nitrogenous compounds. The Vohr machine dispenses the ozone as soon as it is generated.

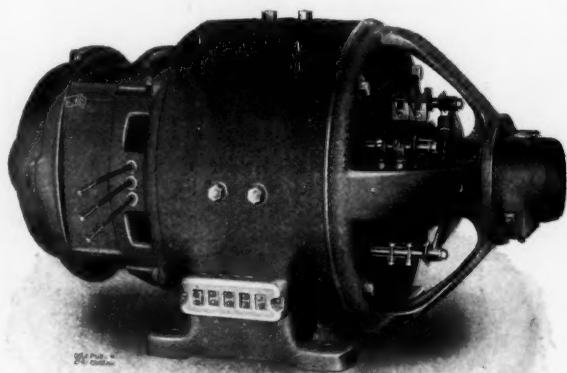
Ozone has many industrial possibilities, as well as being useful in small quantities in freshening the air in dwelling houses, offices and factories. Its field embraces water purifying and many industrial operations in breweries, tanneries, soap factories, laundries, the preserving of fruits and produce, the cyanide process in mining, the aging of whiskey and a number of others. The subject is one of present-day interest to electrical men, owing to the fact that the increasing use of this product will make necessary corresponding increase in the use of electricity.

#### Battery Charging Sets

The number of homes where electricity is a stranger is rapidly decreasing. It is so easy and natural to throw a switch and let electricity do the rest that its use must follow wherever it is available. Small motors designed so that they may be used on the standard lighting and power circuits have greatly lessened the tasks of house-

keeping and added many conveniences to the home, operating sewing machines, ice cream freezers, grindstones, pumps and washing machines.

There are certain cases where the electricity of the lighting circuit can not be applied directly, as, for instance, alternating current to charge storage batteries for the operation of automobiles, electric launches, telegraph instruments and similar apparatus. To meet the requirements of this service the General Electric Company manufactures the small motor generator set illustrated.



General Electric Motor Generator Set for Charging Storage Batteries

The generator voltage may be made anything between 60 and 125 volts by means of a controlling rheostat which is a part of the equipment of the set.

To meet all conditions of installation the generator may be driven by a direct current motor designed for 230 or 550 volts; by a polyphase alternating current motor designed for 110, 220, 440 or 550 volts, 60 cycles; or by a single phase alternating current motor designed for 110 or 220 volts, 60 cycles.

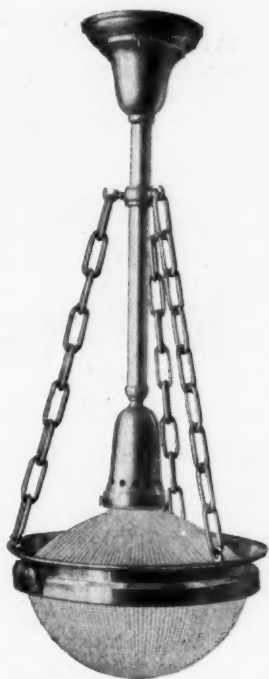
The set may be mounted on the floor, wall, or ceiling wherever most convenient or where the least valuable space will be occupied.

### The Arklite—A New Fixture

An attractive, strong and well-made fixture intended for use in the better class of offices, hotels and stores has recently been designed by Shapiro and Aronson, 67 Centre St., New York.

The fixture has been given the trade name of "Arklite," evidently to indicate the style of lamp it can replace or supersede, as it is used with 150-watt tungsten or Mazda lamps.

The light is directed by a strongly concentrating Holophane reflector through a Holophane bowl which



breaks up the light rays by vertical interior prisms and redirects them by horizontal exterior prisms. By this general diffusion, the bowl has the appearance of a uniformly glowing hemisphere of light with no "spot effect" from the lamp filament.

The fixture is made in standard size, 30 inches from top of ceiling cap to bottom of the brass ring supporting the reflector. It can be furnished, however, in any length desired. The

standard finish is brush brass and it can also be supplied in oxidized copper or nickel.

### A Novelty in Store Signs

The Levy Bros. Company's large store in Louisville, Kentucky, was one of the first buildings in that city to use outline lighting and so effective was the display that the store has now become known as the "Bright Spot." A unique supplementary advertising sign has recently been erected several blocks away which portrays the night effect of this building in miniature and directs attention to the company's "leaders."

The sign is 55 feet long by 50 feet high and requires about 2000 lamps. On one side the complete Levy building is reproduced in outline, glass windows painted to represent artistic window trim are illuminated from behind and give a remarkably realistic appearance, while at the top of the towers and corners of the building 100-watt tungsten lamps burn with striking brilliancy.

The space at the right of the miniature of the store is used to describe in large letters many of the specialties handled by the company. The sign is one of the largest ever built and was designed and constructed by the A. & W. Electric Sign Company.

### Cutler-Hammer Takes "Kohler System"

An arrangement has been made whereby The Cutler-Hammer Mfg. Co. of Milwaukee will hereafter manufacture and market for Kohler Brothers of Chicago, the various types of automatic push-buttons, operated controllers for printing presses, motor-driven tools and similar machinery comprised in "the Kohler System" of control. It is announced by the Cutler-Hammer Company that they have retained the services of the men who have been handling this branch of Kohler Brothers' business, thus insuring a continuance of expert supervision by engineers thoroughly familiar with the system and its application.

### The Moore Light Co.

The Moore Light Company has been incorporated to handle the manufacture and sale of the Moore Light under license from the Moore Electrical Company, which will continue as a holding company and will own the Moore Light patents. The new company reports a large amount of business in prospect. The Willimantic Works of the American Thread Company has recently made an installation of the Moore light and orders have been received from the Public Service Corporation for the Prudential Building, Newark, and the Susquehanna Silk Mills at Sunbury, Pennsylvania. The business in Europe is being exploited on a comprehensive scale by the Allgemeine Moore-Licht Gesellschaft, and the Deutsche Moore Light Gesellschaft.

### Blowing Iced Air

The combination of the electric fan and the cake of ice is a good one to remember this month, which suggests again that every central station man should have a little card file arranged by seasons where he can stow away such good sales schemes as this. The idea of blowing iced air is in no way new, but it is unheard of to the majority of consumers, and can be taken advantage of every summer, if it is remembered at the proper time.

The cake of ice is placed in a tub and the fan played directly on it. Before the ice disappears this will lower the temperature of the room to a surprising degree.

**Wanted**—By a large central station operating syndicate, for two large cities in the middle west, two experienced business getters who are now employed as managers of New Business Departments or the equivalent and have made a record for themselves. Write fully. Address, Two Cities, care Selling Electricity, 74 Cortlandt St., New York City.

**Wanted**—An ambitious experienced business getter electric power and light. Salary start ninety dollars per month; fine chance for advancement. Service solicitor needed as soon as possible. Pacific Power & Light Co., Portland, Oregon.

## Now is the time to help each other

We are today living in the age of electricity, the possibilities for the use of which seem to have no limit. Electricity is now applied to every industrial purpose and is rapidly displacing all other forms of power.

By leaps and bounds it is gaining favor as a domestic power because it is the safest, cleanest and most convenient to use about the house.

With everything so much in their favor, it is no wonder more money is being made every day by those central stations having the advantage of our service.



## The assistance we offer

is not an experiment but a well managed plan we have been following for a number of years. To dealers and central stations who handle our electric domestic appliances, we furnish free of charge all kinds of advertising matter for distribution in their territory, also cuts and copy to run in their local papers. They also get our advice on plans of advertising; in fact, we help them in every way possible.

## Do not you need our assistance?

Write for proposition; ask for our series of "Ad Books" and samples of our advertising literature.

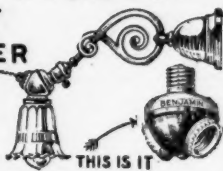
**Westinghouse Electric & Mfg. Co.**  
**Pittsburg, Pa.**

Sales Offices in all Large Cities



## BENJAMIN TWO-LIGHT PLUG CLUSTER

For Doubling the  
Capacity of Your  
Sockets Without  
Extra Wiring



It just screws in—and the work is done.  
You have one light, but want two. Or  
you want to run an extra wire to another  
point for connecting some electrical appli-  
ance — fan, heater, curling-iron, flatiron,  
chafing dish, etc., and still keep your light  
burning. *You need not rewire the place  
to do it.*

*Benjamin Plug Cluster Does the Work  
of Two Sockets.*

For sale by all Elec-  
trical Dealers or  
sent postpaid on re-  
ceipt of price, 75c.

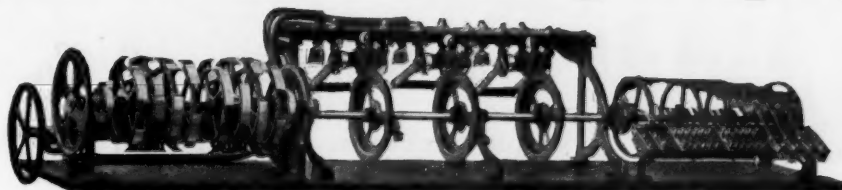
BENJAMIN ELECTRIC  
MFG. CO.  
507 W. Jackson Blvd.,  
Chicago



During the hot days  
is the time to read for  
the busier fall.

And remember, it is  
just as important to  
apply the ideas in the  
advertisements as the  
new thoughts you find  
in the solid pages.

## Spectacular Flashing Displays



### Require Reliable Flashers

We build 'em from the smallest to the largest.

(Approved by the Underwriters.)

New ideas for displays in blue print form sent upon request.

## Reynolds Electric Flasher Mfg. Co.

Largest Manufacturers of Flashers in the World

New York Office  
1123 Broadway

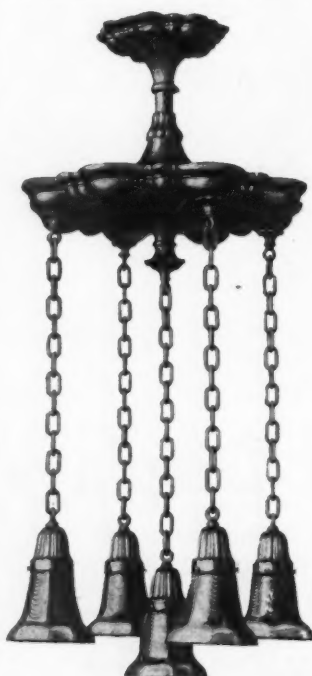
Factory and Main Office, 195 Fifth Ave., Chicago

In writing to advertisers, mention "Selling Electricity"



The Sign of the  
Dollar Idea—

*Where Are Yours?*



A4574 Old Brass

## Williamson Fixtures

*Williamson Fixtures* represent progress in artistic design and construction, as well as the latest improvements in the lighting art.

*Williamson Fixtures* are characterized by the highest degree of perfection in workmanship and material known to the industry.

*Williamson Facilities* include the largest factory of its kind in the world, and more than all, an organization whose one strenuous aim is to satisfy.

### R. Williamson & Co.

Manufacturers of

Electric Combination Fixtures and Art Glass Shades  
Washington and Jefferson Sts., Chicago, Ill.



This double-faced sign is a

**READY SELLER**

at \$99.00 net to Central Stations

Size 5 ft. x 7 ft.

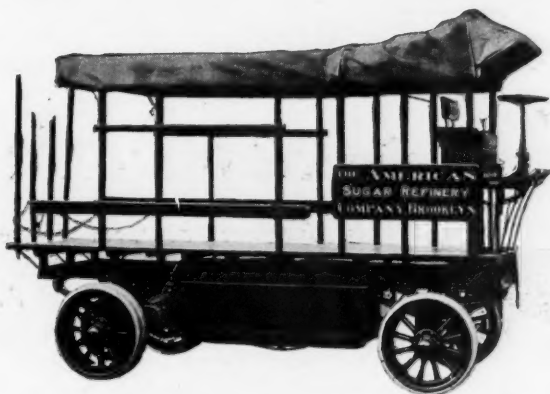
Electric Letters, Porcelain Enamel  
Other Letters, Glass Transparency

**HALLER SIGN WORKS (Inc.)**

704 S. Clinton Street, Chicago

In writing to advertisers, mention "Selling Electricity."

# Studebaker



Service Wagon in Use by the American Sugar Refinery Co.,  
Brooklyn, N. Y.

## Increase Your Revenue by Encouraging the Use of Electric Vehicles in Your Locality

Every electric vehicle in use is an electric current salesman. It is a source of continuous profit for power stations.

By co-operating with us you can do much to encourage the use of Studebaker Electric Wagons among the mercantile interests of your city.

To merchants, Electric Vehicles mean greater efficiency of delivery service and economy in maintenance.

To you, they mean greater and constantly increasing profits. One single house in New York City which we are equipping with an electric delivery system will require 24,000 K. W. H. of current per year to maintain it.

We have a plan that will work to our mutual interest. Write for it.

---

### Studebaker Automobile Co., South Bend, Ind.

BRANCHES—New York, Cleveland, San Francisco, Louisville, Portland, Minneapolis, Dallas, Pittsburg, Chicago, Boston, Denver, Seattle, Columbus, Kansas City, Stockton, Salt Lake City, Oakland, Sacramento, Philadelphia, Indianapolis, Milwaukee, Boise.

Adv. 3-B-1328.

In writing to advertisers, mention "Selling Electricity."

## Now is the Month!

During July and August the Central Station experiences its "dull season" when the salesman finds it hard to dig up new business.

But—these are the very months when it is easiest to interest the housekeeper in

### The **THOR** Electric Home Laundry Machine

when this proposition is the profitable one for you to push.

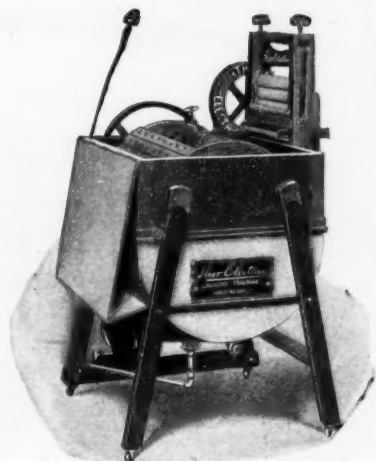
Fully 25% of our machines go into homes where there was previously no current—that means that you can interest prospective consumers as well as present customers if you talk THOR now!

### Hurley Machine Company

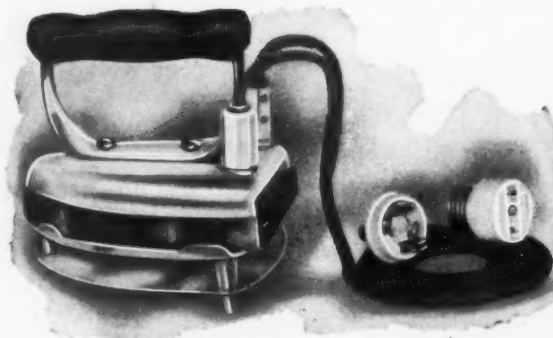
CHICAGO  
Monroe and Clinton Sts.

NEW YORK  
Flatiron Building

SEATTLE  
421 Union St.



## *Don't Compete with Yourself—Make What You Sell Pay for Itself Before it Goes Out*



This is a guaranteed flat-iron that can be handled, demonstrated and distributed at a profit without raising your present prices. We know it will please your customers.

May we have an opportunity to convince you?

### Excel Electric Heating Company

52 Lawrence Street, Newark, N. J.

C. S. Knowles, Boston, Mass.  
Hughson & Merton, San Francisco, Cal.  
American Electric Company, St. Joseph, Mo.

J. Lewis Davis, Dallas, Texas  
E. P. Boss, Buffalo, N. Y.  
Harmer & Co., Portland, Ore.

Consolidated Engineering Co., Denver, Col.  
The Royce Electric Co., Indianapolis, Ind.  
The Lowe Electric Company, N. Y. City

In writing to advertisers, mention "Selling Electricity."





Design A.  
G-M Lamp  
(Patent applied for)

## Mr. Goodridge was right

When he said:—

*"You have certainly struck the right principle for building reading lamps. It is the most beautiful light I have ever seen."*

Mr. Goodridge is assistant manager of the Bryant Electric Company and knows.

**We want to tell you our story.**

## The Electric Motor & Equipment Co.

NEWARK, N. J.

You can walk out with an

## Everson Vacuum Cleaner

on your little finger and SELL IT the day it arrives

**Weight 35 Pounds**

**List Price \$80 Complete with 12 Tools**

1-6 H. P. Holtzer-Cabot Motor

Indestructible Vulcanized Fibre Case, which is a non-conductor of electricity

Highest Effective Suction

*Appeals alike to the Intelligent Housewife and the Discriminating Central Station Engineer*

**Everson Mfg. Co., 34 Oliver St., Boston, Mass.**



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Is the Time—  
Simplex the Iron

To satisfy your customers—to lead the sale of other devices—to increase the earning capacity. Let us help you tell your customers about the Simplex Electric Household Helps.

Write for Plan "2."

*This Trade Mark*



*Stands for Goods Made on Honor*

**SIMPLEX ELECTRIC HEATING CO.**

**Cambridge, Mass.**

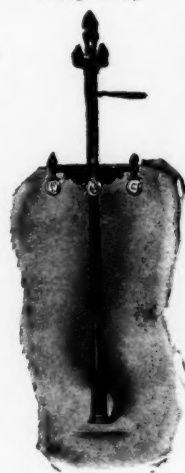
Monadnock Block, Chicago  
612 Howard St., San Francisco

**Combination Pole**

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Design 41008

and inquiries coming in every day  
Our Product is the Standard

**ELMER P. MORRIS CO.,** 94 West Street  
NEW YORK

**The "IMPERIAL"**

A Portable Vacuum Cleaning Machine combining efficiency, practicability and economy. Can be attached to any electric light socket.



"The only High-Grade, Efficient Machine on the Market." Guaranteed. A Dividend Payer for Central Stations. Growing concerns and responsible parties wanted as agents. Exclusive territory given. Send for Catalogue and particulars. M'd in 2 sizes.

Price, \$100.00 and \$75.00 Complete.

**EMPIRE VACUUM COMPANY,**  
112 West 30th Street, New York.

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## Which Would You Rather Be?

If you were one of these two men would you change places with the other for a difference of half a cent an hour?

The comfort alone is worth many times that amount, to say nothing of the difference it makes with your disposition and the work you can do. The same thing is true of your customers and

## Now is the Time to Talk Fort Wayne Fans

Most all electric fans are on a par as far as appearance and guarantees are concerned, but there's a mighty big difference in their performance, and that's just where Fort Wayne Fans are strong.

We make a size and type for *every use* and it will pay you to send for a supply of our free 32-page illustrated booklets and distribute them to your customers.

At least send for a copy for your own use.

### FORT WAYNE ELECTRIC WORKS

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1603 Broadway, Fort Wayne, Ind.

Branch offices most large cities



FOR THE  
**Hot August Evenings**  
PORCH, LIBRARY, LIVING ROOM

## Emeralite Portables

TABLE PIANO WALL

The Cool, Rich, Green Shade makes this Lamp

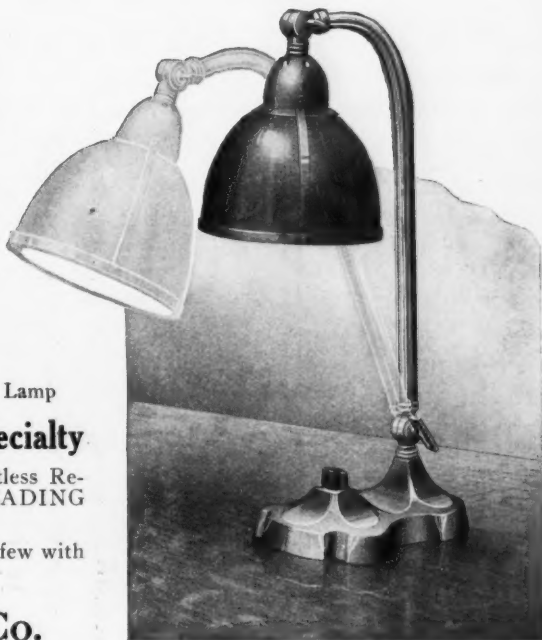
### A Good Warm Weather Specialty

The Clear, Bright Light from the Dustless Reflecting Surface makes it the BEST READING LAMP all the year round.

THE PRICE IS LOW—try selling a few with your flatirons.

**H. G. McFaddin & Co.**

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## It is Calorite that has Revitalized the Heating Device Business

*Calorite has inspired a new and widespread confidence in all electrically heated devices on account of the great durability it gives to the heating element.*

### The G-E line of Electric Heating Devices

Flatirons  
Tailors' Irons  
Flatiron Heating Stand  
Water Heaters  
Combination Cookers  
Cereal Cookers  
Tea Kettles  
Coffee Percolators  
Chafing Dishes  
Radiant Toasters  
Frying Pans  
Grids  
Disk Stoves  
Broilers  
Ovens  
Corn Poppers  
Cigar Lighters  
Hot Water Cups  
Heating Pads  
Glue Pots  
Luminous Radiators  
Tubular Air Heaters  
Cooking and Baking Outfits

### Calorite is Practically Indestructible

Calorite, the resistor material used exclusively in G-E heating devices, has a high melting point, will not burn out at less than 1850 degrees Fahr., has 70 times the resistance of copper, and more than twice that of the commonly used copper-nickel alloys; in short, it is an ideal resistance alloy.

### How Uniform High Quality is Achieved

We direct, control and inspect every step in the process of making Calorite, thus insuring its uniform high quality. Nothing is left to chance. Rigid specifications, exacting inspections and expert supervision follow every stage of its manufacture by skilled operators—from the mixing, melting and pouring to the rolling, annealing, drawing, punching and final testing.

We are the only manufacturers of electric heating devices to make and control a resistance material.

### The Discovery of "Calorite"

In common with all other manufacturers of a complete line of heating devices, for many years we were dependent for our resistance materials on the ordinary market alloys. Realizing that a broad and permanent success for electric heating devices required a more satisfactory resistance material, we were forced to seek a new resistor alloy. Thousands of dollars was spent in our large Research Laboratories, expert metallurgists mixed in their crucibles, hundreds of combinations of rare and common metals. This resulted in the discovery of Calorite, the most effective material known for transforming electricity into heat in heating devices.

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Largest Electrical Manufacturer in the World

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Baltimore, Md.	Cincinnati, O.	Kansas City, Mo.	New York, N. Y.	San Francisco, Cal.
Boston, Mass.	Cleveland, O.	Los Angeles, Cal.	Philadelphia, Pa.	St. Louis, Mo.
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Butte, Mont.	Denver, Colo.	Nashville, Tenn.	Portland, Ore.	Spokane, Wash.
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Charlotte, N. C.	(office of Sol'g Agt.)			

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## The "Win-do-lite" Sign



### *A New Idea for Window Lighting and Sign Combined*

The tungsten lamps and reflectors are concealed behind, illuminating the rich, leaded, art glass sign.

Perfect illumination for the window and a striking sign of selected colors, with letters that are interchangeable.

We can't describe it here, but our new Bulletin 223 shows the whole scheme *in colors*.


You can sell this fixture in a dozen places today!

**FEDERAL ELECTRIC COMPANY**  
CHICAGO

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